THE BRICKBVILDER

VOL. 12 No. 7 DEVOTED · TO · THE · INTERESTS · OF ARCHITECTVRE · IN · MATERIALS · OF · CLAY JULY 1903

THE BRICKBUILDER.

PUBLISHED MONTHLY BY

ROGERS & MANSON,

85 Water Street, Boston, Mass. . . P. O. Box 3282.

Entered at the Boston, Mass., Post Office as Second Class Mail Matter, March 12, 1892.

COPYRIGHT, 1893, BY THE BRICKBUILDER PUBLISHING COMPANY.

Subscription price, mailed flat to subscribers in the United States and Canada	$5.00 per year
Single numbers	50 cents
To countries in the Postal Union	$6.00 per year

SUBSCRIPTIONS PAYABLE IN ADVANCE.

For sale by all newsdealers in the United States and Canada. Trade supplied by the American News Company and its branches.

ADVERTISING.

Advertisers are classified and arranged in the following order:—

	PAGE		PAGE
Agencies.— Clay Products	II	Cements	IV
Architectural Faience	II	Clay Chemicals	IV
" Terra-Cotta	II and III	Fire-proofing	IV
Brick	III	Machinery	IV
" Enameled	III and IV	Roofing Tile	IV

Advertisements will be printed on cover pages only.

BRICKBUILDER COMPETITION.

WE wish to call the attention of our readers to a slight change in the program for the library competition, detailed announcement of which will be found elsewhere in this issue. At the request of several of our subscribers we have modified the conditions by substituting a line elevation for the required perspective. We have also modified the restrictions as to the size of sheets, giving each competitor a better opportunity to present his work in what seems to him the best manner.

THE ROYAL ACADEMY GOLD MEDAL.

WE have alluded in a previous issue to the bestowal of the Royal Gold Medal of the Royal Institute of British Architects upon Mr. C. F. McKim of New York. The first recipient of this medal was Professor Cockerell, to whom it was given in 1848. The successive recipients have been chosen with a great deal of wisdom and the bestowal has recognized the best talent which the architectural profession throughout the world has manifested during the last half century. Among those to whom it has gone are included Sir Charles Barry, Owen Jones, Sir Gilbert Scott, Viollet le Duc, Sir James Pennethorne, George Edmund Street, John Pearson, Baron von Ferstel, F. C. Penrose, H. Schliemann, Charles Garnier, Baron von Hansen, R. M. Hunt, Lord Leighton. It has become an unwritten rule to select in rotation an English architect, a foreign architect, and a literary man with architectural instincts.

Mr. Aston Webb, in presenting the medal to Mr. McKim, gave a very felicitous sketch of the recipient's career, and stated that the selection was made of him as "a highly distinguished American architect, a very near relation of ours and a representative man, in order that we may show to him personally and to the whole world of American artists our high appreciation and admiration of the great work that marvelous country is doing on the other side of the world, an appreciation not only of what they are doing, but also of what we expect them to do, untrammeled by traditions, full of youth, energy, imagination and initiative, and supported by almost boundless resources; and we are confident that as time goes on they will not only develop fresh types and plans of buildings, but that they will, though still mindful of the past, clothe those buildings in a language that will be distinctly their own." While a certain amount of this extremely flattering generalization can be put down to the courtesy which was so charming an accompaniment of this occasion, it is quite certain that Englishmen, and especially English architects, are looking to this country for a kind of development in our profession which has not been found in what we choose to call the older countries. It is also evident that their expectations have not been entirely disappointed, and that others have found in our work some of the elements which we have fondly felt ourselves were not conspicuous by their absence.

Quoting still further from Mr. Webb's introductory address, Mr. McKim was born in Chester County, Penn., six-and-fifty years ago, and at eighteen entered Harvard University with a view to becoming a mining engineer. A year later, finding the work uncongenial, he entered the office of Mr. Russell Sturgis, architect, New York, and, in the autumn of the same year, the Atelier Daumet in Paris, where he was prepared for and admitted to the Ecole des Beaux-Arts, remaining until the outbreak of the war some three years later. During this time Mr. McKim also traveled in Europe and visited England in 1869, during which time he was made an honorary member of the Architectural Association. Returning to New York in 1870, Mr. McKim entered the office of the well-known archictect, H. H. Richardson, and in 1872, at the age of twenty-five, commenced practice on his own account, being joined in 1877 by Mr. William Rutherford Mead, and in 1879 by Mr. Stanford White, and since that time they have continued their practice as "McKim, Mead & White."

The Orientation of Hospital Buildings.

BY WILLIAM ATKINSON.

A HEALTHY hospital has been defined as "A hospital which does not *by any fault of its own* aggravate ever so little the recovery of persons who are properly its inmates, and this, the only right sense of the absolute word, governs the word's comparative applications, so that when we compare them together with reference to their 'healthfulness' and call one of them the 'unhealthier' hospital, our meaning is that in this hospital, by means of some faults of its own, disease cannot be treated as successfully as in the other hospital; and the fault of its own, through which an 'unhealthy' hospital fails to attain the best results for its medical and surgical treatment, is of two kinds — either it is an *inherent fault*, as of site and construction; or else it is a *fault of keeping*, as dirtiness or overcrowding or neglect of ventilation." *

Unquestionably the first requisite for a healthy hospital is abundance of sunlight. Not only the exterior wall surfaces of the buildings, but also the ground surfaces between and around them should have the direct rays of the sun for as long a time as possible each day.

"Second only to air is light and sunshine essential for growth and health, and it is one of nature's most powerful assistants in enabling the body to throw off those conditions which we call disease. Not only daylight, but sunlight; indeed fresh air must be sun-warmed, sun-penetrated air. The sunshine of a December day has been recently shown to kill the spores of the anthrax bacillus." †

Wall surfaces, especially brick walls, absorb a large amount of moisture during rains. This moisture is quickly dried out by exposure to sunlight, but is retained for a long time in walls which are not exposed to the sun and creates an unhealthy condition; for dampness, with lack of sunlight, is a combination favorable to the growth of low forms of vegetable life and should be avoided in hospital buildings.

To secure sunlight in the fullest measure requires that the general plan of the buildings shall be carefully studied with this end in view.

Several years ago in a little book on hospitals,‡ in which I had the honor to be the collaborator of Dr. Alfred Worcester, I stated as follows the principles to be observed, in the order of their importance, in designing the general ground plan of a group of hospital buildings:

"*First.* To secure a large amount of sunlight for each one.

"*Second.* To impede as little as possible the circulation of air in and around the buildings.

"*Third.* To provide for the future enlargement of the hospital; and

"*Fourth.* To promote convenience and economy of administration."

I added further: To study properly the question of sunlight, a "sun plan" of the buildings must be drawn and their positions considered with reference to the shadows they cast upon each other and upon the ground. An astronomical table, showing the path of the sun from sunrise to sunset at the different seasons of the year, is desirable for this work.

It is the object of the present essay to illustrate the application of the first of the above principles with a few diagrams representing some of the principal types of hospital plans.

In the latitude of Boston, Mass., the sun rises on the longest day of the year about 34 degrees north of east and sets at an equal distance north of west, traveling during the day over a horizontal circle of about 248 degrees and reaching at noon an altitude of approximately 72 degrees above the horizon.

On the shortest day of the year he rises about 34 degrees *south* of east and sets an equal distance *south* of west, traveling over a horizontal circle of only 112 degrees and reaching at noon an altitude of only 23 degrees above the horizon.

At the two periods of the year when the days and nights are of equal length (in March and September) the sun rises in the east and sets in the west, traveling over a horizontal circle of 180 degrees and reaching at noon an altitude of 48 degrees (approximately) above the horizon.

The diagrams in Fig. 1 give the position of the sun at each hour of the day (sundial time) for the four periods of the year named.

Availing ourselves of this diagram, we may develop some useful principles to govern the general disposition and arrangement of hospital buildings.

Suppose "A" in Fig. 2 to represent a building square in plan, placed squarely north and south.

It is clear that the north wall will receive no sunlight at any time during the day during half the year (from September 22 to March 21) and only a small amount in early morning and late afternoon during the other half; that the east wall will receive sunlight from sunrise till noon all the year round; that the south wall will receive sunlight all day during half the year (from September 22 to March 21) and a less amount during the other half, and that the west wall will receive sunlight from noon until sunset all the year round.

Suppose "B" in the same figure to represent the building placed at an angle of 45 degrees with the meridian.

It is clear that all four sides of the building will now have sunlight during some portion of the day throughout the year. The northeast wall will have the morning sun; the southeast and southwest walls will have the sun during the middle of the day, and the northwest wall will have the afternoon sun.

The following table gives the number of hours during which the walls in the two figures are exposed to sunlight at the four periods of the year named. It is evident that this table will serve not only for square buildings but also for buildings rectangular in plan.*

FIGURE A.

June 21.

N. wall	{ 4 25 a. m. to 7.45 a. m. / 4.15 p. m to 7.35 p. m. }	6h 40m
E. wall	4.25 a. m. to 12 m.	7h 35m
S. wall	7.45 a. m. to 4.15 p. m.	8h 30m
W. wall	12 m. to 7.35 p. m.	7h 35m

* Sixth Report of the Medical Officer of the Privy Council, 1864.

† Galton, Healthy Hospitals.

‡ Small Hospitals. New York, 1894. Wiley & Sons.

* This table is calculated for sundial time, from the sun chart (Fig. 1), and is sufficiently accurate for our purposes.

March 21 and September 22.

N. wall	None
E. wall—6 a. m. to 12 m	6h
S. wall—6 a. m. to 6 p. m	12h
W. wall—12 m. to 6 p. m	6h

December 21.

N. wall	None
E. wall—7.35 a. m. to 12 m	4h 25m
S. wall—7.35 a. m. to 4.25 p. m	8h 50m
W. wall—12 m. to 4.25 p. m	4h 25m

Let us now compare the two figures with respect to the shadows they cast upon the ground.

Fig. 3 is the "shadow plan" of a cube, placed in the two positions in question. The shadows are drawn for each hour of the day from sunrise to sunset. They are superposed one upon the other, so that the depth of shadow at any particlar point corresponds to the length of time that point is without sunlight, the lightest tint representing

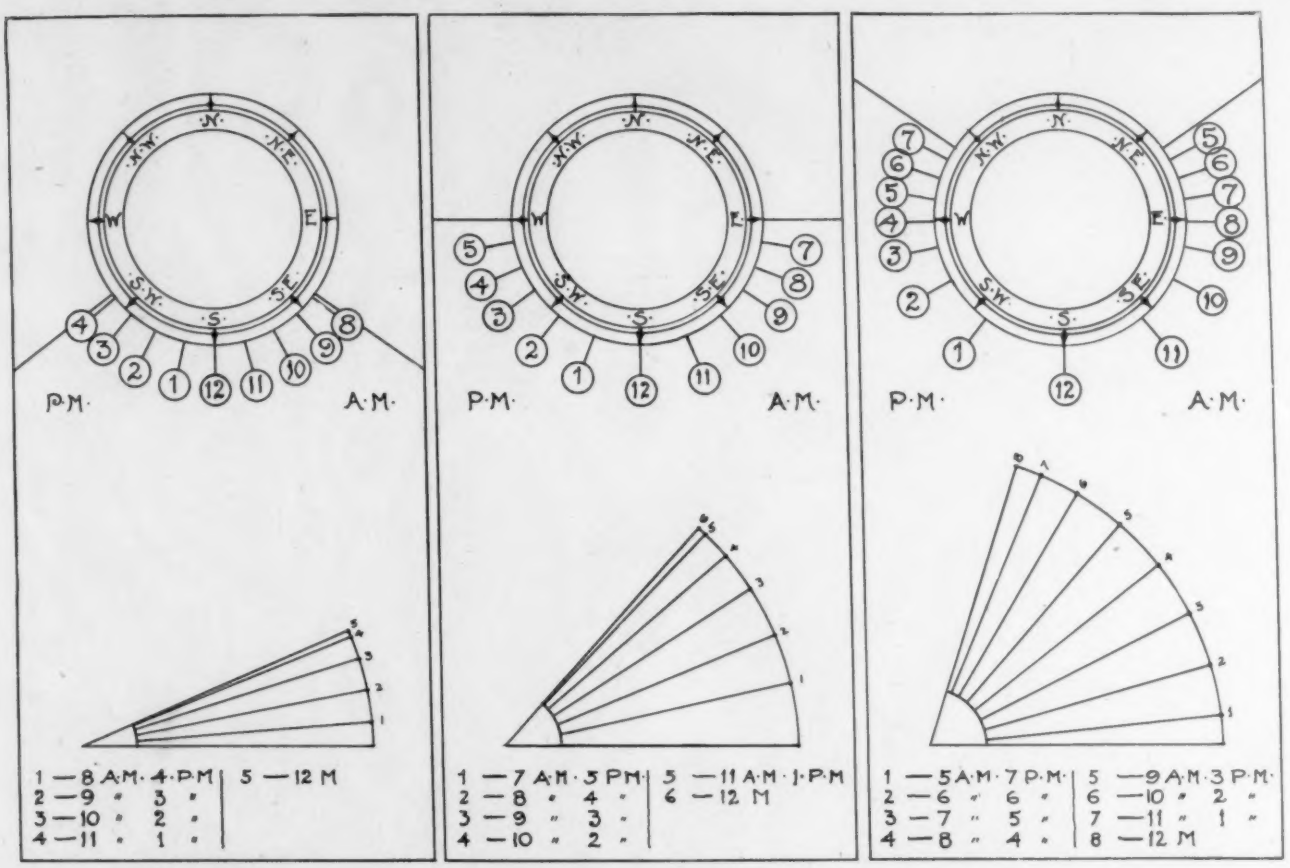


FIG. 1. SUN CHART.

FIGURE B.

June 21.

N. E. wall—4 25 a. m. to 10.45 a. m	6h 20m
S. E. wall—4.25 a. m. to 1.15 p. m	8h 50m
S. W. wall—10.45 a. m. to 7.35 p m	8h 50m
N. W. wall—1.15 p. m. to 7.35 p. m	6h 20m

March 21 and September 22.

N. E. wall—6 a. m. to 9.45 a. m	3h 45m
S. E. wall—6 a. m. to 2.15 p. m	8h 15m
S. W. wall—9.45 a. m. to 6 p. m	8h 15m
N. W. wall—2.15 p. m. to 6 p. m	3h 45m

December 21.

N. E. wall—7.35 a. m. to 8.45 a. m	1h 10m
S. E. wall—7.35 a. m. to 3.15 p. m	7h 40m
S. W. wall—8.45 a. m. to 4.25 p. m	7h 40m
N. W. wall—3.15 p. m. to 4.25 p. m	1h 10m

Evidently the arrangement shown at "B" has the better sun exposure.

In "B" all four walls have sunlight at some part of the day throughout the year, while in "A" 25 per cent of the wall surface is without any sunlight at all during one-half the year.

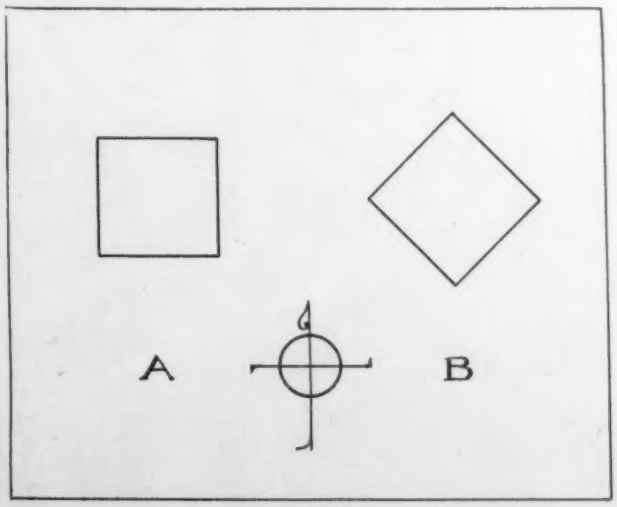


FIG. 2.

area in shadow for one hour or less and the darkest (solid black) area in shadow for eight hours or more. The Roman numerals denote the hour for which each shadow is drawn.*

The following table gives the areas of the shadows cast upon the ground, supposing the cube to represent a building 100 feet square and 100 feet high:

	A. sq. ft.	B. sq. ft.
Area in shadow from 1 to 2 hours....	49,922	71,175
" " " " 2 " 3 "	20,275	22,986
" " " " 3 " 4 "	12,053	12,833
" " " " 4 " 5 "	6,818	3,911
" " " " 5 " 6 "	4,616	2,733
" " " " 6 " 7 "	577	2,292
" " " " 7 " 8 "	508	2,115
" " " " 8 " 9 "	405	†900
" " " " 9 " 10 "	350	none.
" " " " 10 " 11 "	250	none.
" " " " 11 " 12 "	200	none.

* In this and all the following diagrams the shadows are drawn for the two periods of the year when the days and nights are of equal length.

† In shadow from 8 to 8¼ hours.

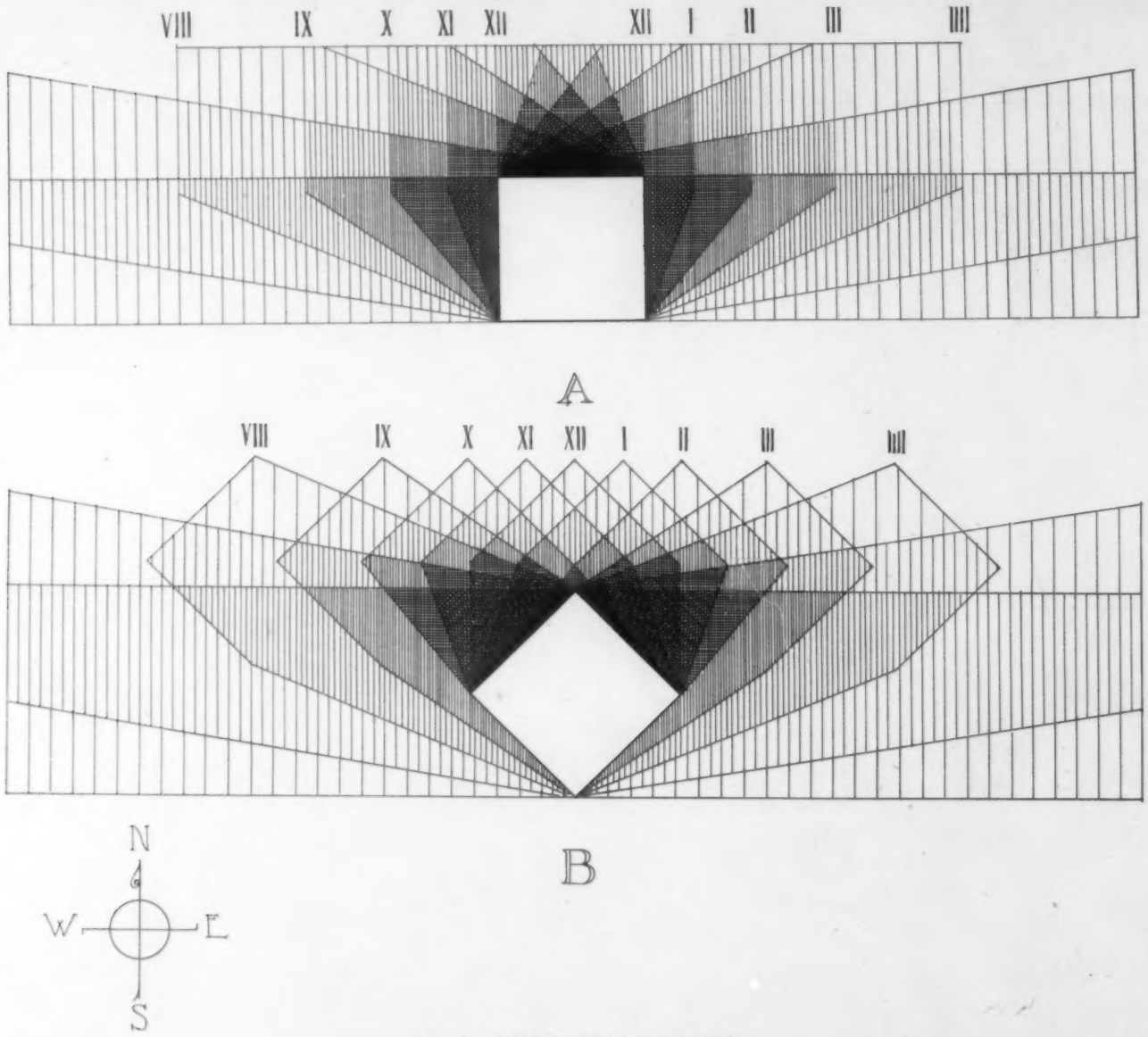


FIG. 3. SHADOW PLAN OF A CUBE.

From an inspection of the figure we see that in the case of "A" there is a considerable triangular area to the north of the cube (or building) which is exposed to the sun for a short time only in the early morning and late afternoon, whereas in the case of "B" there is no portion of the area which does not have either the forenoon sun up to 9.45 A. M. or the afternoon sun from 2.15 onward.

It will be instructive to study the effect of a diminution in the height of the building.

If we draw out the shadow diagram for an object one-half the height of a cube (corresponding to a building 100 feet square and 50 feet high) we shall find that in the case of the position "B" *all* of the shadow areas are diminished in size, whereas in the case of the position "A" only those areas are diminished in size which are in shadow for six hours or less. (See Fig. 4.)

From a study of these diagrams we are led to the conclusion that a square building placed squarely north and south shades the ground area around it considerably

more than the same building placed at an angle of forty-five degrees to the meridian.

In the series of diagrams which follow are shown the principal types of hospital plan placed in various positions in regard to the sun.

As it would be impracticable in the space at my command to give a separate shadow plan for each one, I have represented for each figure only that portion of the area which is without sunlight from 8 A. M. to 4 P. M. or longer, the lightest tint indicating area without sunlight from 8 A. M. to 4 P. M., the medium tint area without sunlight from 8 A. M. to 6 P. M. or from 6 A. M. to 4 P. M., and the solid black area without any sunlight whatever during the day.

In these diagrams I have followed Burdett's classification of hospital plans, to wit:

The single straight block.

Two blocks arranged as an L.

Three blocks arranged as a U.

Three blocks arranged as an H.

In the case of the single straight block, the height is supposed to be equal to its width, and in the case of the compound plans, to be equal to the width of the wings.

The light and medium tinted shadow areas would not be affected by an increase in height, but those in solid black would be increased or diminished according to the height of the blocks. This is important to bear in mind in studying the diagrams.

The single straight block (Fig. 5) may fairly typify a single ward pavilion as well as the simplest type of block plan.

There is a difference of opinion as to the best orientation for ward pavilions.

In a description of the Heidelberg University Hospital, given in Mouatt & Snell's "Hospital Construction and Management," it is stated that "the question of the aspect of the windows of the wards was only settled after very great deliberation by the authorities charged with the erection of this building, and Dr. Knauff gives in his work* a very exhaustive account of the considerations which ultimately led to the determination of placing the axes of the various pavilions as nearly east and west as the shape of the ground would permit. Actually their direction is about E. S. E. and W. N. W. It is remark-

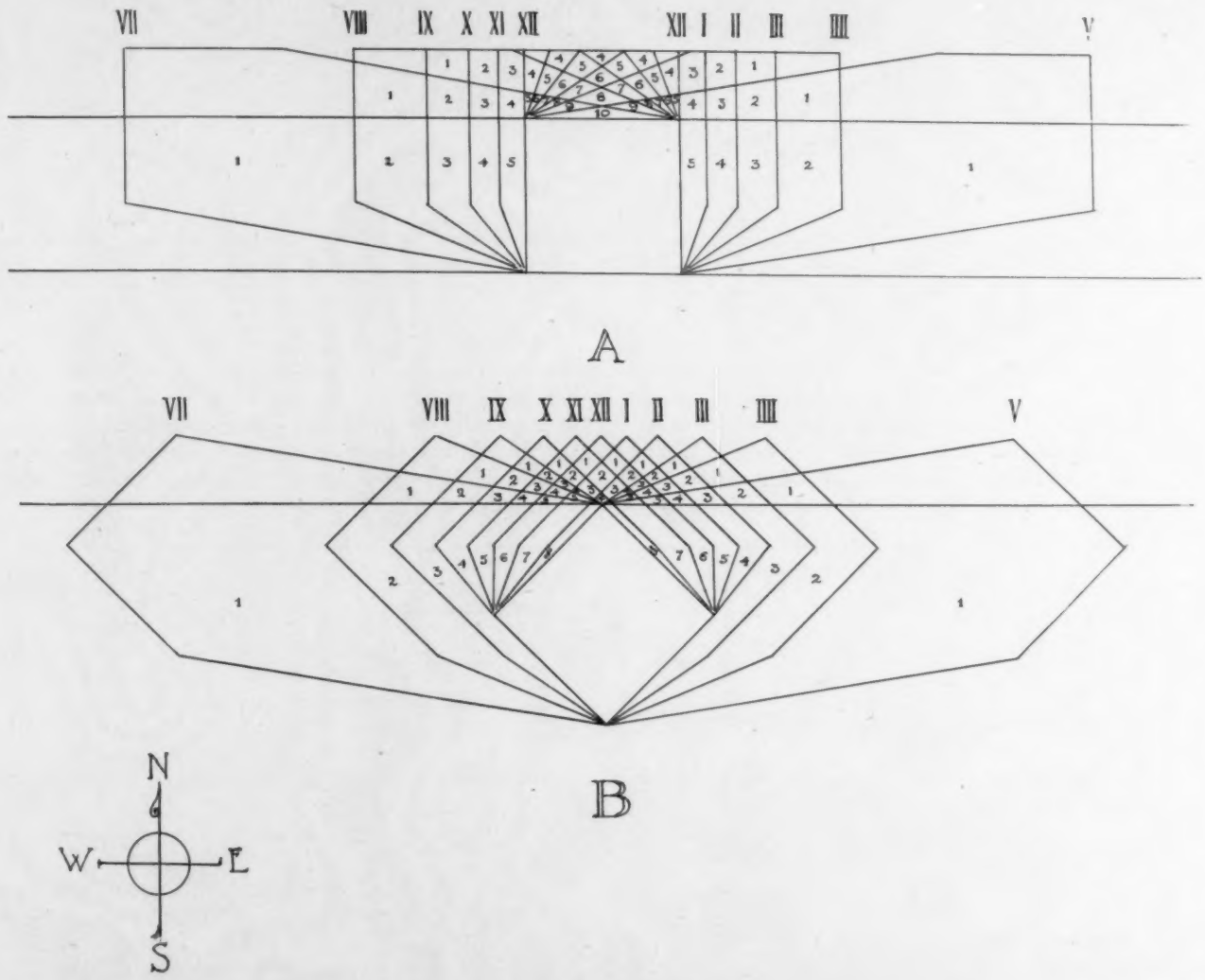


FIG. 4.

* Das Neue Academische Krankenhaus in Heidleberg.

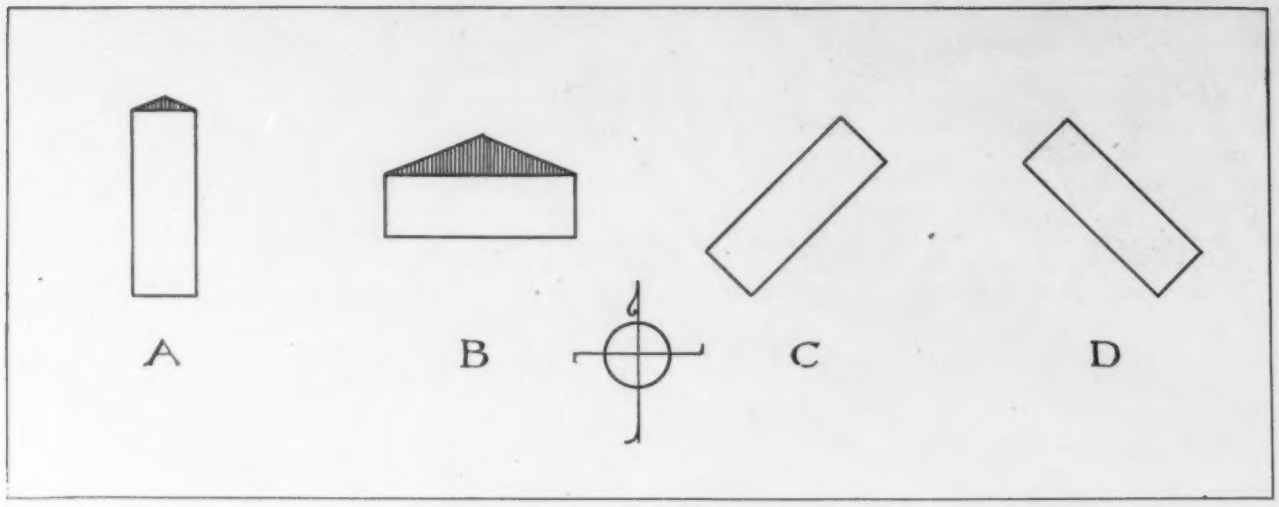


FIG. 5. THE SINGLE STRAIGHT BLOCK.

able that the Friedrichshain building authorities, as the result of their deliberations on this question, arrived at an exactly opposite conclusion, and placed the axes of their pavilions directly north and south."

In a list of 38 hospitals, given in the same work, there are 13 in which the pavilions are placed approximately north and south, 15 in which they are placed approximately east and west, 6 in which they are placed approximately northwest and southeast, and four in which they are placed approximately northeast and southwest.

The following table gives the percentage of wall surface which is without sun at any time during the day for the four different positions shown in Fig 5:

A—12½%.	C—None.
B—37½%.	D—None.

It will be observed that in the case of "A" and "B" there is a considerable area of ground to the north of the buildings which is in shadow from 8 A. M. until 4 P. M., or practically without any sunlight at all during the day; whereas, in the case of either "C" or "D," there is no portion of the ground around the buildings which is without sunlight.

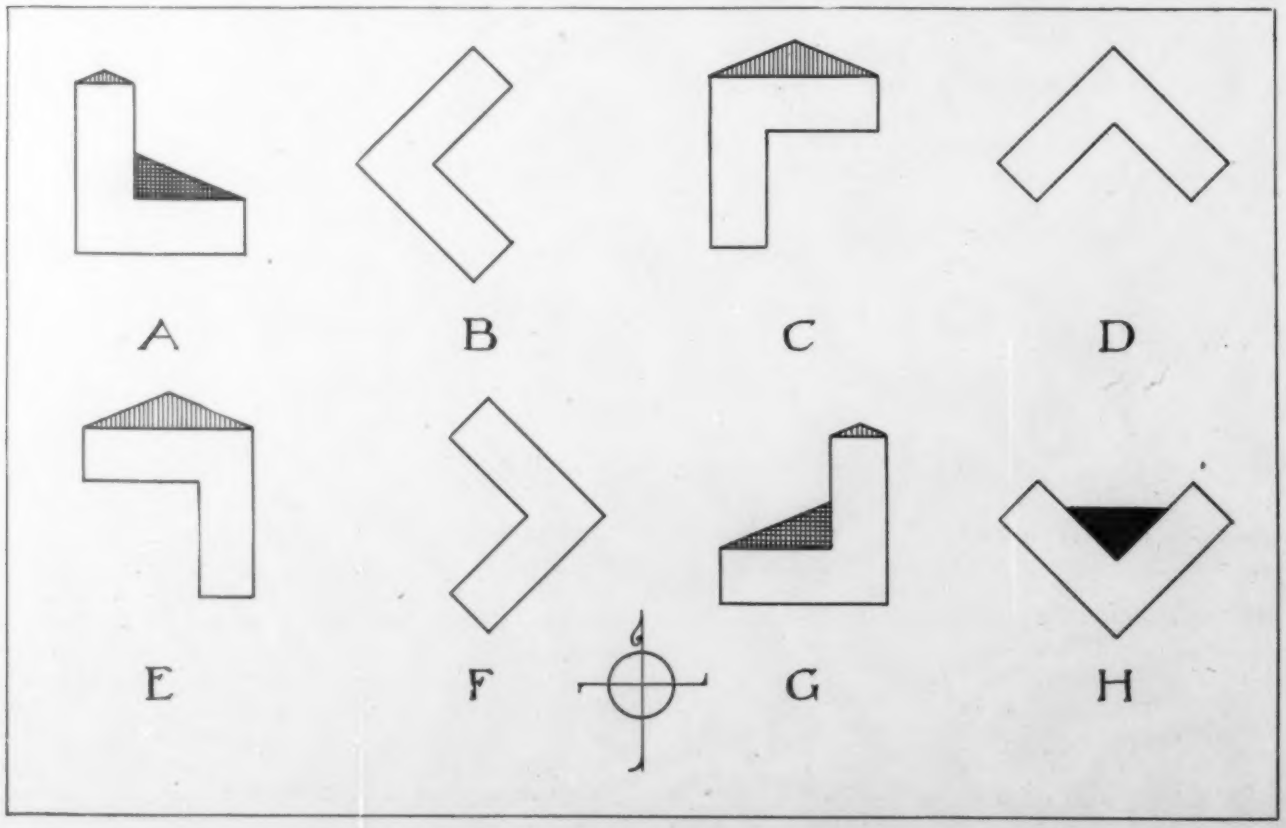


FIG. 6. TWO BLOCKS ARRANGED AS AN L.

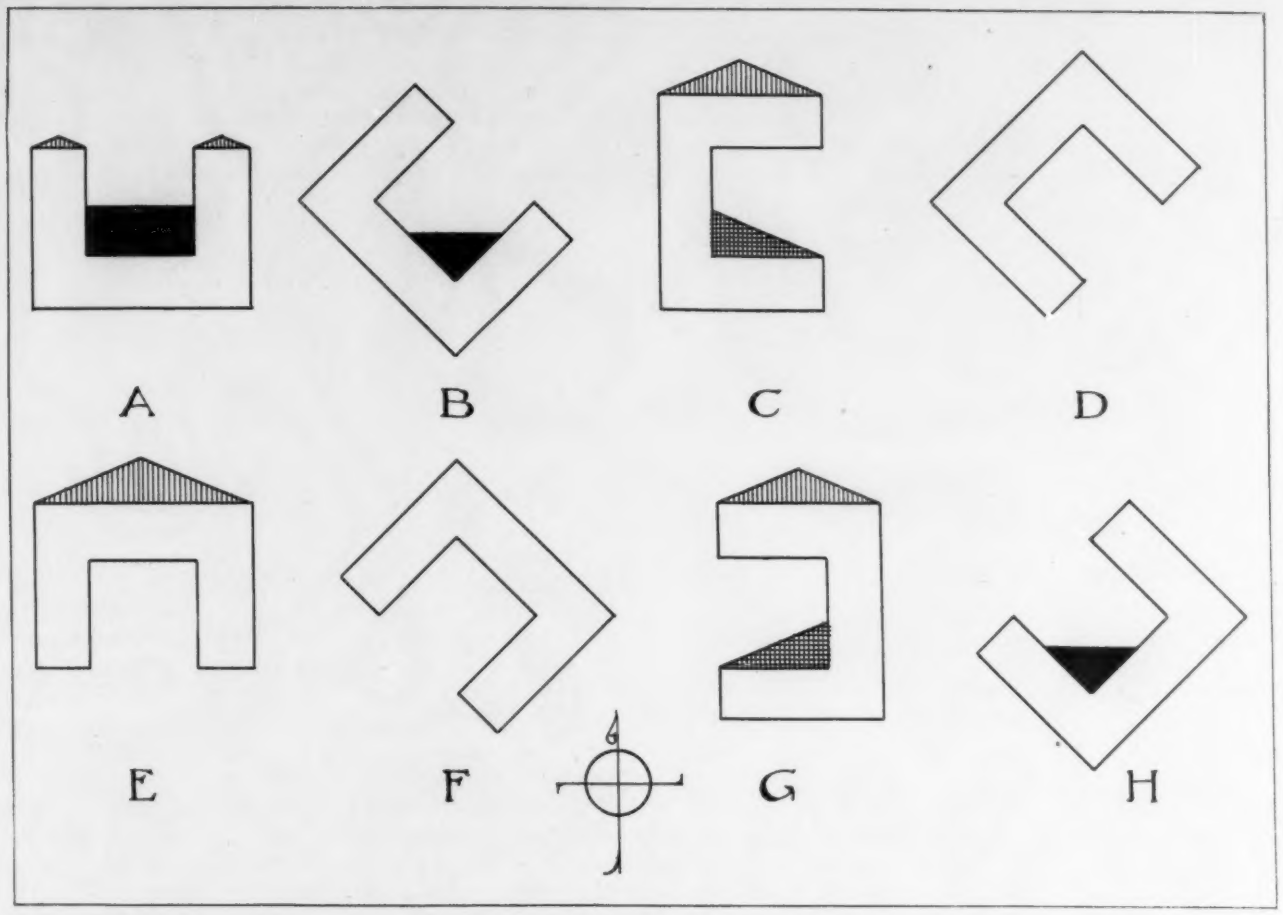
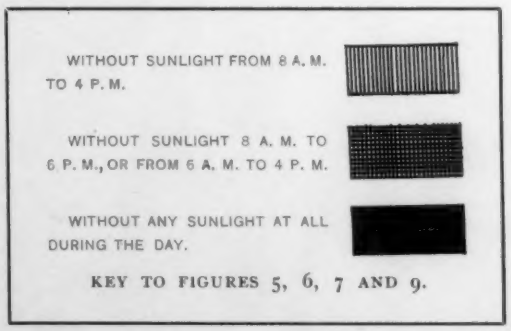


FIG. 7. THREE BLOCKS ARRANGED AS A U.

In the position "A" the windows on each of the long sides have the sun for an equal amount of time during the day, the windows on the east side having the sun during the forenoon and the west windows the afternoon sun. For a pavilion divided up into separate rooms, with windows only on one side, this might be considered an advantage.

Bearing in mind, however, that the forenoon sun is more prized than the afternoon sun, it is suggested that the position "D" is equally as good as "A" in this respect, inasmuch as one of the long sides has the sun from sunrise until 9.45 A. M., and the other from 9.45 A. M. until sunset, each long side thus having a share of the forenoon sun.



KEY TO FIGURES 5, 6, 7 AND 9.

The plan of two blocks arranged as an L (Fig. 6) is a common one for hospitals on the block plan, especially on confined sites.

From an inspection of the diagram it is seen that the positions "B," "D" and "F" are preferable to any of the others, while "H" is the least good.

The following table gives the percentage of wall surface without sun at any time during the day (Fig. 6):

A—28%.	E—25%.
B—None.	F—None.
C—25%.	G—28%.
D—None.	H—10%.

A good form of block plan is that of three blocks arranged as a U, giving a court enclosed on three sides (Fig. 7).

The best position for this type of plan is either "D" or "F," which are equally good.

The bad effect of such a court with a north aspect is easily seen from an inspection of the diagram ("A"). The northeast ("B") or northwest aspect ("H") is much better. This may be seen more clearly from the isometric view (Fig. 9), which contrasts a court with a north aspect with one having a northeast aspect, the shaded portion in each figure denoting the wall and ground surfaces which are without sun at any time during the day. Note especially the small amount of surface in shade in the court with the northeast aspect, almost insignificant in the case of a one-story building.

The following table gives the percentage of wall surface without sun at any time during the day (Fig. 7):

A—27%
B—7%
C—30%
D—None.
E—22%
F—None.
G—30%.
H—7%.

In the "H" type of block plan (Fig. 8) it is to be observed that in whatever position it is placed there is a portion of the wall and ground surface without sunlight, and it may therefore be dismissed as an unsuitable type of plan for hospitals.

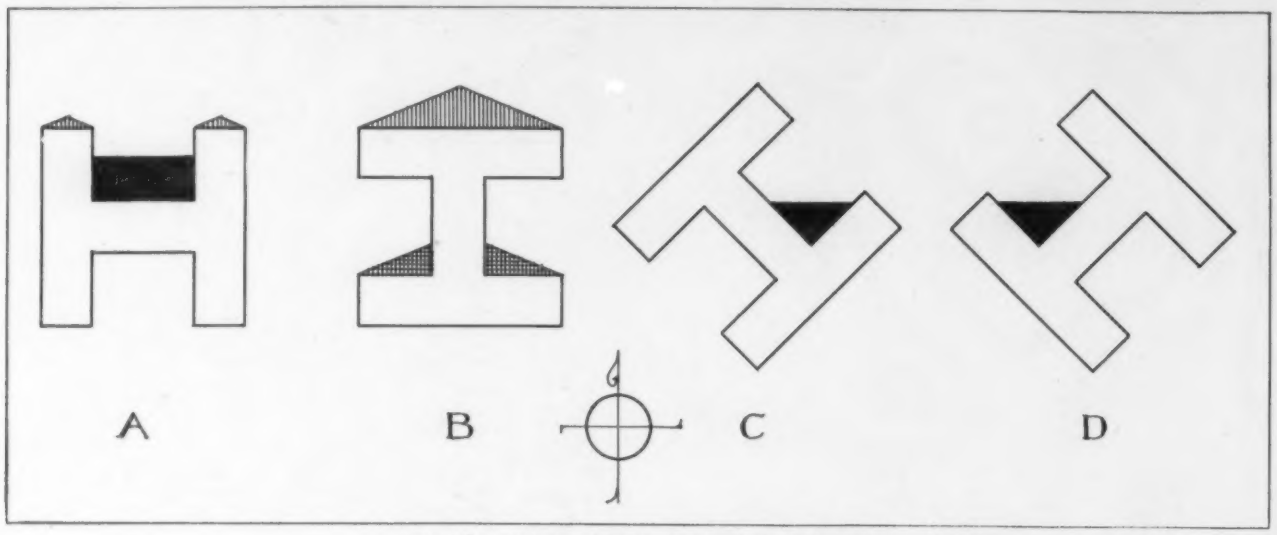


FIG. 8. THREE BLOCKS ARRANGED AS AN H.

Other forms of block plan may be made by combining the elementary forms above given, such as the cross plan, which is a combination of two Ls, or the "E" plan, which is a combination of two U plans, and others, but the elements of nearly all such plans will be found to consist of U shape courts enclosed on three sides, or re-entrant angles of L shape, both of which have been investigated in the foregoing discussion.

We are now prepared to announce our final judgment, to wit: That for isolated buildings of all ordinary rectangular types of plan the location of the main axes of the buildings at an angle of 45 degrees to the meridian yields in all respects a satisfactory sun exposure for the wall and ground surfaces.

In the above discussion we have considered isolated buildings only.

In the pavilion type of hospital plan, which consists of a number of separate buildings of various shapes and heights, either entirely isolated or more or less connected by corridors, the problem becomes more complex, as it is necessary to consider the shadows cast by the different buildings upon each other. A separate and careful study of each case upon the lines indicated is a necessary preliminary to the creation of a successful hospital plan.

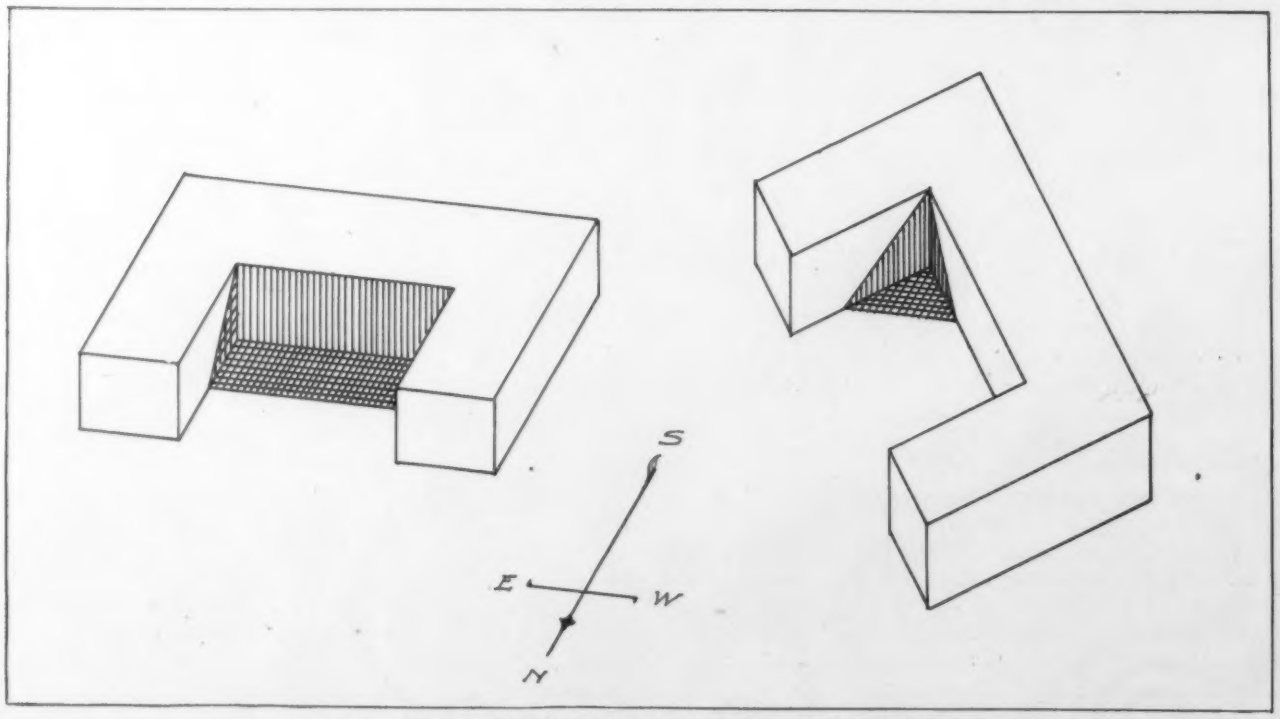


FIG. 9. THREE BLOCKS ARRANGED AS A U, ISOMETRIC VIEW.

Rowton House, Whitechapel, London.

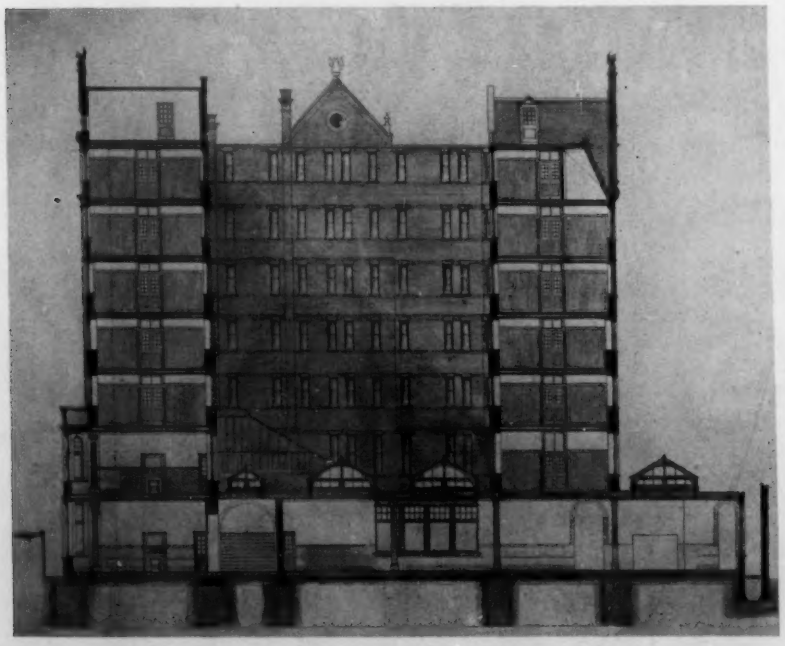
BY R. RANDAL PHILLIPS.

A ROWTON HOUSE is an astonishing example of what can be had for a small sum. Workingmen can stay there for twelve hours, with a clean bed, a place to take their meals, a footbath and the advantages of reading and recreation rooms, all for sixpence. And so far as the meals themselves are concerned there is no stipulation even that these shall be bought in the house (though this can be done at the cheapest rates), for if they choose to do so men may bring in their own food and have the use of a cooking stove and frying pans, pots, china, etc., without any extra charge. Moreover it should be remembered that "Rowton Houses, Limited," is not a philanthropic institution, but a business concern that pays a dividend of five per cent on its outlay, all profit in excess of that amount going towards the erection of new houses. The fifth and latest of these "poor men's hotels" is Rowton House, Whitechapel, in the east of London, which was formally opened last year. It has 816 cubicles. The first of these houses was opened in 1893 at Vauxhall, in the southwest of London; it has 475 cubicles. Two years later a house was erected at King's Cross, in the west central part of London; it has 677 cubicles. Then in 1897 came one of 805 cubicles at Newington Butts, in the southeast of London (by an addition just opened the building now has a total of 1,015 cubicles, with an extra smoking and writing room); then one of 800 cubicles at Hammersmith, in the west of London; and lastly this house at Whitechapel.

It should be explained that these buildings only pay a profit when the cubicles are fully occupied every night. That they are so occupied — indeed scores of men are turned away nightly — proves how exceedingly popular the houses are among the men whom they are intended to benefit.

ENTRANCE FRONT, ROWTON HOUSE, WHITECHAPEL, LONDON.
Harry B. Measures, Architect.

At the ninth annual general meeting of Rowton Houses, Limited, held in March last, a dividend of three per cent only was declared, but this was due to the outbreak of smallpox in London, for the houses had to be closed against newcomers, and the revenue consequently suffered a good deal. Sir Richard Farrant said at that meeting that the company now had 3,993 cubicles and that these were not sufficient for the demand. In existing circumstances a number of what may be called permanent lodgers are elbowed out from time to time by casuals. As a rule the casual is not so cleanly a person as a permanent lodger, and it would be impossible to pay a dividend if the company had to depend on him. At present the charge of sixpence per night is made irrespective of who the men may be, but in the future it is proposed that those booking for a week shall be charged 3*s.* 6*d.* for that time and others 7*d.* per night. About seventy-five per cent of the lodgers would be unaffected by the change, so far as the houses at Vauxhall, King's Cross, Newington Butts and Hammersmith are concerned. At Whitechapel the conditions are different. The site there cost more than the others, the building has been more costly, and the assessment is very high. The company therefore feel it will be necessary to charge 4*s.* for weekly bookings in that house and 8*d.* for single nights; besides, the amount of petty pilfering at Whitechapel has been serious, and this has not been the work of the permanent lodgers, but of the casuals.



ROWTON HOUSE, WHITECHAPEL, LONDON. SECTION ON A–B.

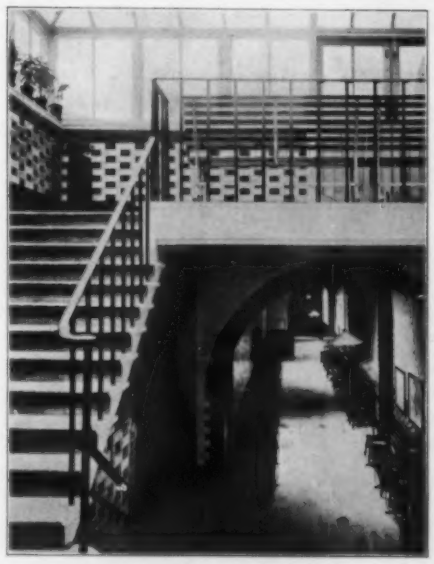
FOOTBATHS.

A CUBICLE.

LOCKER CORRIDOR.

The Whitechapel house has its main front on Fieldgate Street. (Any one desiring to visit it should go on the Underground Railway to St. Mary's Station.) The site consists of two adjoining parallelograms, the larger of which has a frontage of 192 feet, with a depth of 129 feet, the smaller having a back frontage of 75 feet and a depth of 67 feet, the total superficial area being 29,500 feet. On each side are wide fore courts, which, with an inner courtyard 50 feet wide and open at one end, provide abundant light and air; while electric light is installed throughout, and on a system which gives the official on each floor of cubicles the control of the lights on that floor, with central control of all in the office on the ground floor.

The exterior of the building is of red pressed Leicester facing bricks,



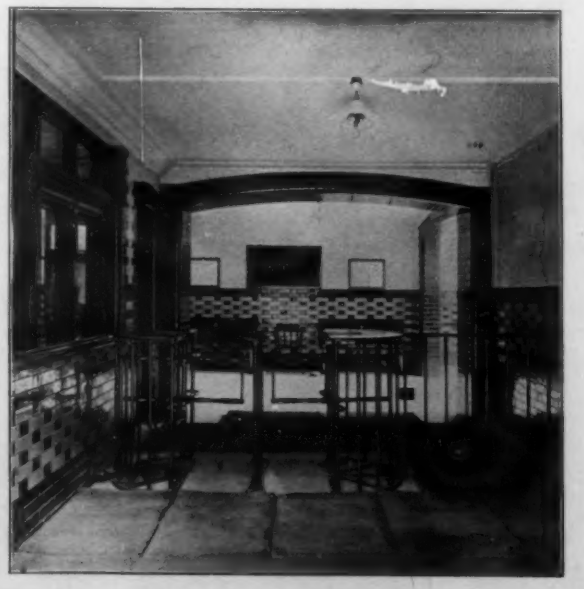
MAIN CORRIDOR.

relieved with Flettons and terra-cotta dressings; inside Fletton (where plastered) and glazed bricks are used throughout. The whole of the brickwork is set in Portland cement mortar. Green slates are used on the roofs to the front elevation, nailed on coke-breeze concrete slabs carried by steel construction. The other roofs are concrete flats covered with asphalt. The sanitary work has received special attention, iron pipes with coated interiors being employed wherever it has been necessary to carry them under the building.

For administrative purposes the building is divided into the five following sections: superintendent's department; catering section, which includes sleeping accommodation for females employed in the shop, kitchen and scullery; bedmakers; lodgers' day rooms; and lodgers' cubicles. The superintendent's residence is of two stories and self-comprised, with an office and clerk's residence adjoining, the office being immediately inside the main entrance to the building.

The catering department is on the

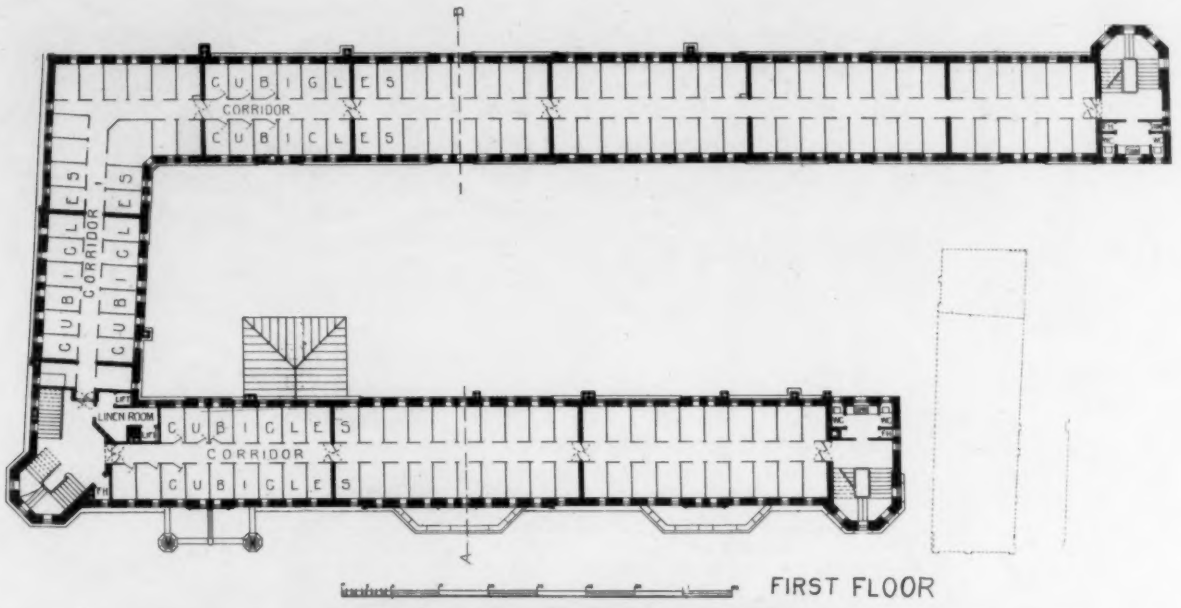
DINING ROOM.



OFFICE AND ENTRANCE.

ground floor and comprises kitchen, scullery, larder, shop, service lobbies, storerooms and servants' rooms (one sitting room, six bedrooms, bathrooms, lavatory and water-closet).

The rooms, other than the sitting room and bedrooms, which are plastered, are lined with glazed brickwork from floor to ceiling, with a dado in chocolate bricks and white



FIRST FLOOR

above. The kitchen measures 29 feet by 20 feet and has a wood block floor with tiled margin and hearths. The scullery is 27 feet by 22 feet and has large teak sinks, draining boards, plate racks and dresser; the larder is 15 feet 6 inches by 8 feet. Adjoining the main dining hall is a shop with sash windows and counter for service.

We now come to the lodgers' day rooms, which include a smoking room, reading room, dining room, scullery, etc. Leading to the right off the main entrance corridor on the ground floor is the smoking room. This has a floor space of 1,936 feet, and its windows look into Fieldgate Street, so that there is ample light. The tables and seats, as in the dining room, are of teak and seat one hundred and forty lodgers, in addition to which wooden easy-chairs are provided around the two fireplaces and in bays. Here again the walls have a dado of chocolate and cream bricks, with plastering above tinted a terra-cotta shade; mantels and overmantels are in glazed faïence and fitted with large open grates.

Opposite, on the other side of the corridor, is the dining room. As well as windows it has large ventilating top-lights opening into the central courtyard. It is a very large room, the floor space being 5,891 feet, and seating accommodation at tables is provided for 456 men. There are four large cooking ranges with ovens, hot plates and grilles, and large boilers at the back with boiling water for lodgers' cooking, tea, etc. The scullery adjoining is intended for lodgers who wish to prepare their own food for cooking; in fact, every provision seems to have been made, so that the men may buy their meals cooked from the shop, buy raw material there and cook it themselves, or bring their own food and cook it; thus every one's personal means and inclination are considered. Adjoining the dining room are also a shelved room for crockery, cooking utensils, etc. (for the free use of lodgers who wish to prepare their own food), and a large space with more than eight hundred lockers, divided by seven passages top-lighted and ventilated. The lockers are 3 feet high by 1 foot 6 inches square inside and are arranged in three tiers.

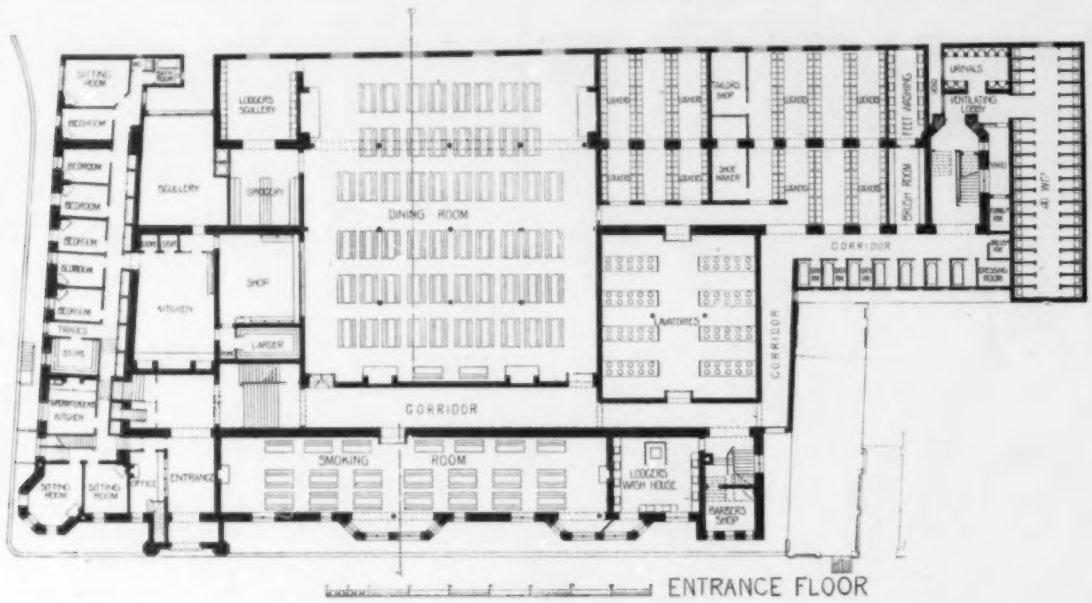
THE LAVATORY.

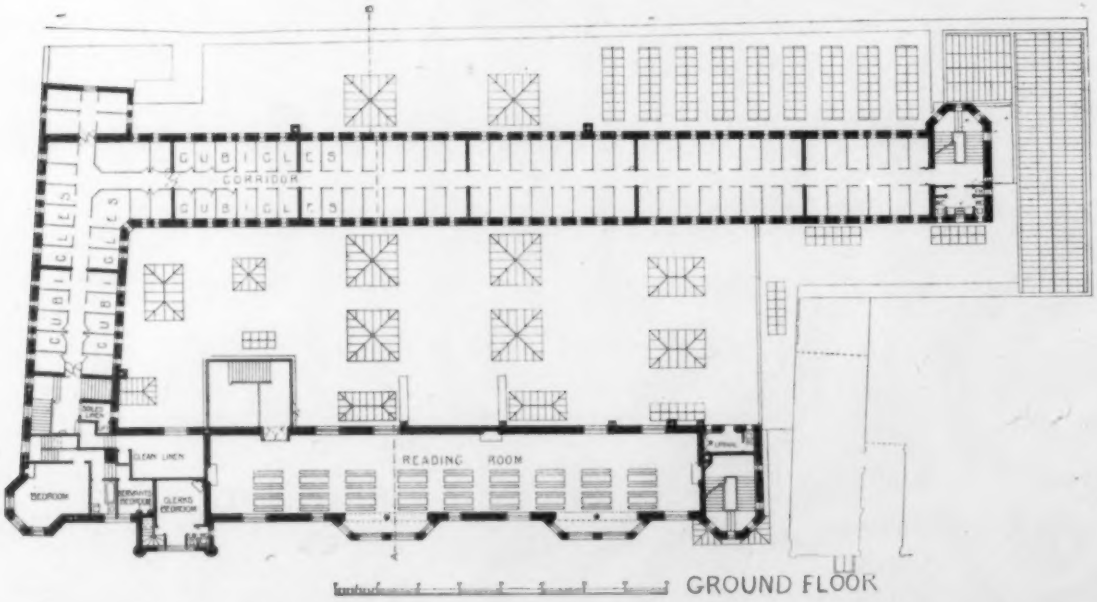
The lavatory is at one end of the building and is 38 feet wide by 40 feet long. It is lined with glazed brickwork and has eighty basins of white enameled fire clay fitted with polished slate tops, brass taps, etc., the waste pipes discharging over an open white enameled earthenware channel in the floor, which is laid in falls to the channeling for cleansing and quick drying. The hot water pipes are exposed, and the heat radiated from them helps to warm the lavatory.

The other rooms on the ground floor include one fitted with eleven feet-washing troughs, seven bathrooms, two dressing rooms, a wash house where lodgers may wash their own garments, barber's, shoemaker's and tailor's shops, a place for cleaning boots and clothes, porters' day room, and parcel room; while outside in the court-yard, and cut off by a cross-ventilated lobby, are forty water-closets in one building and ten urinals in another.

artist in the elevating work of a Rowton House. Close by, on the roof over the dining and other rooms, is a smoking lounge.

The cubicles alone remain to be dealt with. They are approached by three fireproof staircases, all at the ends of the corridors, so that the lodgers cannot be trapped by fire, in addition to which each floor is divided by walls into ten sections, which would check the spread





A fumigating room is also provided outside the building and a drying room formed where waste heat from the furnaces can be utilized.

Over the smoking room, on the first floor, is the reading room. Two bookcases are included in it, and the books are lent to lodgers on application to the superintendent. There are pictures on the walls, and, in addition, a series of panels of "The Seasons," painted by Mr. H. F. Strachey, given as the practical interest of an

of a fire horizontally; this sectioning, too, enables isolation and fumigation to be carried out in the event of an outbreak of contagious disease. There are five floors of cubicles. Each bed is in a separate cubicle, and each cubicle has a window under the control of the occupant. The cubicles are divided up by wood partitions painted a light color and varnished; the partitions next to the corridors are 6 feet 6 inches high, while the divisions are 7 feet 6 inches high, leaving a space above for ventilation.

Economics of Construction. III.

BY JOHN LYMAN FAXON.

THE *units* for office buildings vary somewhat according to demands of local needs or supposed desirable sizes, but, as a rule, the needs of any given line of office business are substantially the same, and there is no

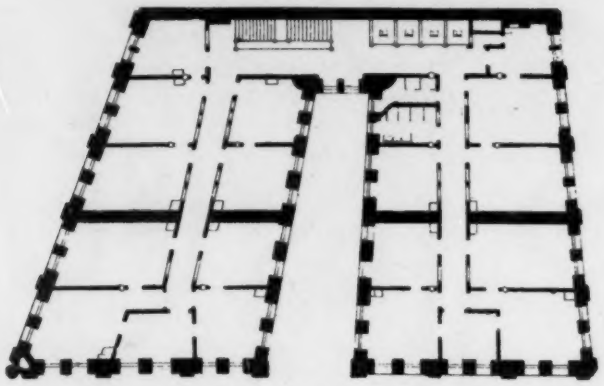


FIG. 1.

special reason why they should not be the same in Boston, New York, Chicago and other large cities, but the plans of office buildings show a useless variation in sizes of subdivisions, some showing sizes as much too large as others too small.

We have made some extended inquiries in reference to desirable units, and the consensus of opinion is that the best proportion is 4 to 5; that offices approximately 12 feet by 15 feet and 14 feet by 18 feet are most desirable; that dimensions less than 11 feet wide or 12 feet deep are not desirable, except for light business requiring desk room only, and that while it is desirable that all office buildings have a few small offices, it is not a good scheme to plan a whole building on such small units. For illustration of the *unit* system, we reproduce some plans, and outline modifications. (See Figs. 1, 2, 3, 3*a*.)

The area and angles of plan shown in Figure 1 are not such as present a ready solution at first glance, but it is subject to a similar scale of units as shown in Figure 3, in place of that as shown in Figure 2, and that such solution of the problem is better for business purposes and would make a material saving in cost. The area and shape of Figure 2 more easily adjust themselves to a desirable unit, as shown in Figure 3. In this problem we have a lot with three open sides, two right angles and one side at an off angle. The offices in Figure 2 vary from about 17 x 17 feet to 17 x 30 feet; the lay-out is costly as to construction. It will also be noted that the columns are irregularly disposed as to locations in the several offices, and such disposition takes up more than 100 per cent of rental area over that shown in Figure 3; also the columns in Figure 2 break up the use of office walls. The area of building to lot, Figure 2, is approximately 83⅓ per cent; that of Figure 3, 81 per cent, a saving of 2⅓ per cent. The rental areas of Figure 2 are approximately 55$\frac{9}{16}$ per cent per floor; those of Figure 3 are practically the same, yet the wing corridors in Figure 3 are 50 per cent wider than in Figure 2, the unit of corridors in Figure 2 being about 1 to 3, in Figure 3, 3 to 5. A corridor unit of 1 to 3 is too narrow in any case, and 3 to 5 is none too large.

The office units, Figure 3, are approximately 4 to 5, 15 x 19 feet, except the six large offices in left wing, 15 x 25 feet; 15 x 31 feet; 15 x 37 feet; the small offices

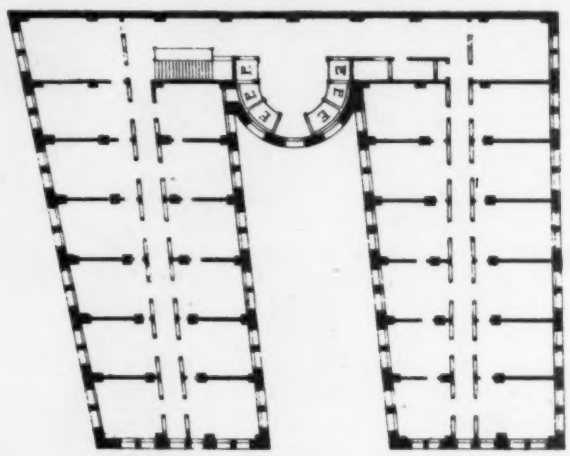


FIG. 2.

at ends of corridors, 9 x 10 feet; those at the front serve as private offices to suites of three to five offices; those at the rear (with borrowed light only) may be used as private offices, or are valuable for storage of books

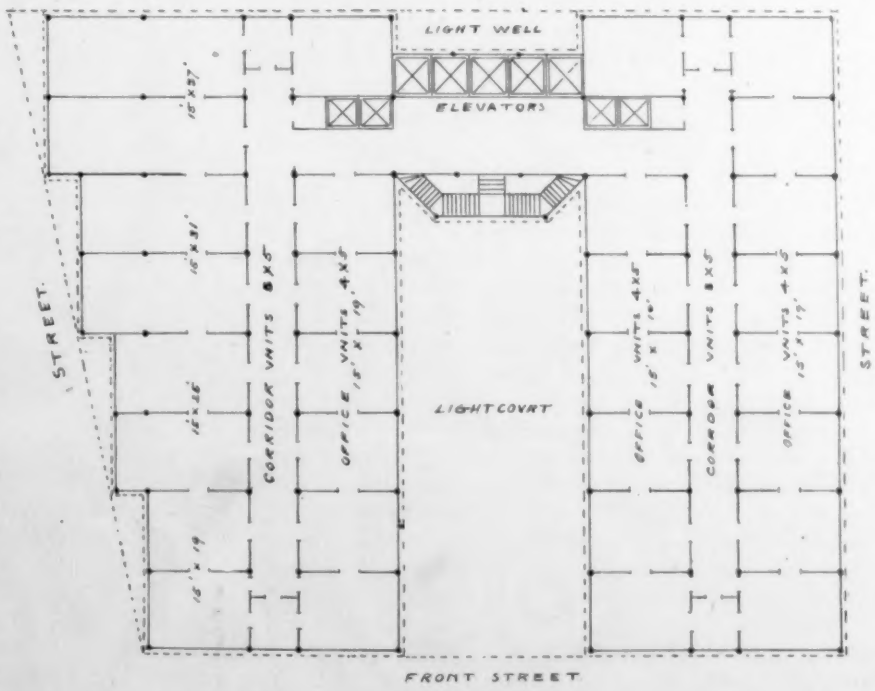


FIG. 3.

and papers of large corporations. The 15 x 25 feet offices are not excessively bad shape; the 15 x 31 feet and 15 x 37 feet offices overrun the mark, but these larger offices gain in light by having wall spaces for windows looking to the front; the gain in desirable size, unit of space, of all the other offices, and the saving in cost more than outweigh the undesirable size of the oversized offices. The saving in cost, plan Figure 3, over that of Figure 2, approximates $110,000 in a twenty-story building. This saving will in twenty-five years amount to about $293,000, to say nothing about reduced cost of insurance, which will amount to quite a penny in twenty-five years.

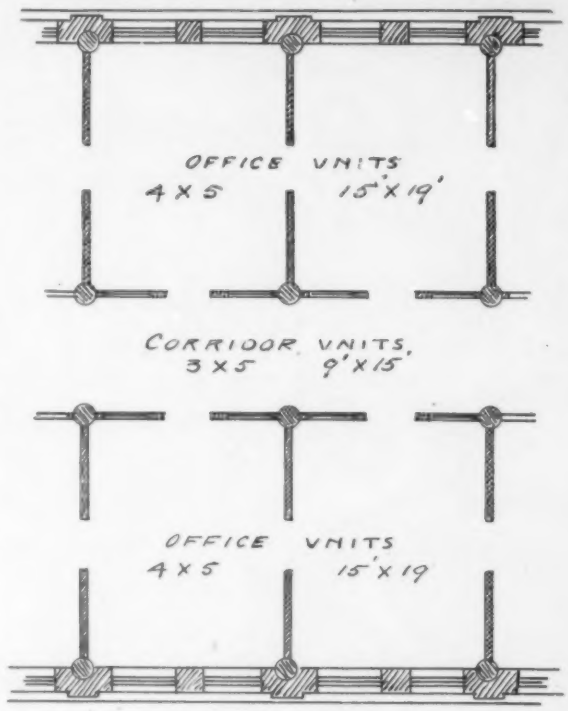


FIG. 3*a*.

The essential elements in office buildings as a business proposition are: (*a*) Thoroughly *fireproof* construction, long life at minimum cost consistent with quality. A building of solid masonry construction meets this. (*b*) The use of best materials regardless of cost, which insure the *least* amount of materials and labor when rightly employed. (*c*) The omission of every ounce of woodwork and finish down to bare necessities (which are relatively small). It would be a great improvement if all flooring throughout were of terrazzo. Such floors are more lasting, cleaner, more sanitary and more desirable in every way, but probably 95 per cent of clients would put them out of consideration on account of first cost. In respect to doors, a metal-faced door on a wood core frame is not such a vast improvement over one of all wood. Some day some man or company will perfect a light fireproof door made of compressed asbestos. (*d*) The maximum amount of rental area consistent with a *unit* plan, wide corridors, cost of construction, light, and reduced premiums for insurance. (*e*) Mechanical plants that will reduce operating expenses from 16 to 20 per cent. This is not a rash statement. The average sum of fixed charges and expenses for office buildings in Boston is, as a rule, 40 per cent of gross income in the majority of cases, to 50 per cent in some cases. We know that this amount can be reduced materially without loss of efficiency or care.

As to insurance, the general practice is to insure for about 80 per cent of cost of building, and the rates vary from $1.75 to $2.50 per $1,000, according to location, surroundings and risk. On a solid masonry building 25 per cent would be *ample* protection and at lowest rates. This item alone means a saving of $28,000 in twenty-five years on a building costing $600,000.

The above means a larger per cent of gross and net income, which is the final and telling analysis in lowest terms of the value of a real estate investment.

Some years back one or more papers were published on the basis of units for office buildings, for lots of different areas, from which we select a typical plan for a building on a lot 50 x 100 feet or 5,000 square feet. As will be noted by the plan shown in Figure 4 the front offices (1, 2 and 3), 16 x 20 feet, have a four to five unit; the other offices have a unit of width of 9 feet 9 inches, which is too narrow; ten of them have a length of 15 feet and a corridor unit of 5 feet to 9 feet 9 inches. The rear wall, in the original, is shown as a dead wall. Offices 4 and 5 are 9 feet 9 inches x 21 feet 6 inches, and have windows against the corner at one end of a long side, which would not afford good light for offices of such areas and dimensions. Offices 16 and 17 are 9 feet 9 inches x 17 feet 6 inches, with windows at the ends.

In this plan (Fig. 4) the elevators and stairs are not well placed, as they are not central to all offices, being so near to the front that they seriously cut into valuable rental areas in the basement and first and second stories. Four elevators are too many for size of building, two being plenty for twelve stories, of this area. In respect to elevator service, a general good rule is, that 2½ per cent of the rental area (of one floor) is a fair allowance for a building ten to twelve stories high, and 5 per cent for one of twenty stories. A larger number of *small* elevators affords better service than a smaller number of *large* elevators.

The water-closets are inconveniently placed, and the steel framing is not economical. The outside columns are indicated as shown in original, the inside columns would need to be located and spaced as shown at A A or as at B B. They could not be spaced otherwise, for wash basins and communicating doors in all partitions are shown (in original) as indicated at A A.

Figures 5, 6, 7 and 8 show a unit plan of an office building, on lot 50 x 125 feet or 6,250 square feet, twelve stories, and illustrating four different systems of construction, *A*, *B*, *C* and *D*.

System A indicates a minimum number of columns, maximum cost; steel columns, I beams and terra-cotta flat arches.

System B indicates same number of columns with another disposition, less cost than *A*, steel columns, I beams and terra-cotta flat arches.

System C indicates a larger number of columns, less cost than *B*, I beams and terra-cotta flat arches.

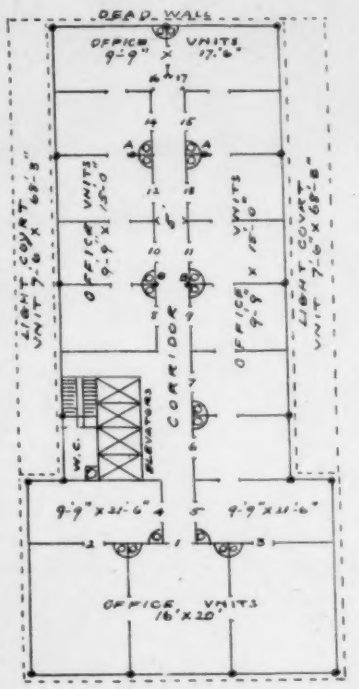
System D shows same arrangement of supports (C. I. columns, fireproofed, or brick piers) as *C*, of solid masonry construction, in single vaults for unit of space, no steel frame, and is the least costly as will be shown by figures below. The units of space in *D* can be covered either

with terra-cotta vaulting of requisite shapes or by the Guastavino system, and of two-centered, four-centered or flat dome vaults.

In and for such a building the question of economics is as to that system which will insure the least hazard as to life of structure, maximum protection against fire, low cost and insurance risk; not only in respect to cost of erection *per se*, but in respect to cumulative cost as an investment, earning capacity and net per cent income, for a term of years.

Assuming that the land costs $100 per square foot, the total investment at completion of building will amount to (steel frame system *A*) $1,215,970 — land, building, carrying charges, architect, taxes, and small allowance for contingencies and extras.

To yield 4 per cent net per annum, the gross income must approximate 9½ per cent on the investment. Our estimate of fair rentals amounts to $112,948 gross or $9\frac{29}{100}$ per cent, but by the lower cost of system *D*, under system *A*, and the saving in operating expenses, it would gain a little over four-fifths of 1 per cent gross, which is quite material. Now, to arrive at a determination as to which system of construction is the most economical, we need to base comparative estimates, not only on first cost, but for a term of twenty-five years (assuming such term to be the maximum life of a steel frame building as now erected), for there are items of cost, charges, rent, interest, etc., which are compounded in any fixed term of years.



STREET FRONT.
LOT 50 X 100 FEET.
FIG. 4.

Assuming that the exterior walls are the same as to resistance to fire, either within or without the building, that the architectural treatment and general finish are the same as to quality and cost in *A*, *B*, *C* and *D*, we then have, as determining factors as to cost and net per cent, the relative cost of supports, floors, roof, fireproofing, architect's commission, loss or gain in rental areas, insurance and interest, which sum up as follows in twenty-five year term:

System A, Fig. 5 (S. F. and T. C.*),		$394,547.91
" *B*, " 6 " " "		378,621.65
" *C*, " 7 " " "		298,727.76
" *D*, " 7 (all masonry),		266,683.83

So in *D* as against *A* we have a saving or profit of $127,864.08, or 48 per cent. The above amounts, in relation to initial investment, are:

A, 32.4 per cent. *B*, 31.1 per cent.
C, 24.5 per cent. *D*, 21.1 per cent.

And what is of more importance, we have in *D* a building good for fifty, one hundred or one thousand years so far as structural permanency is concerned, instead of one good for eighteen to twenty-five years.

This difference in cost means, reduced rents, or a higher rate of gross and net per cent income; tenants do not inquire as to the *system* of construction, when a building is supposed to be fireproof and up to date; consequently there would be no call to reduce rents; on the contrary, if it were known that an office building stood indestructibly *fireproof*, as it would be under system *D*, tenants would undoubtedly pay full as much or more rent, as the feeling of security would be enhanced, and cost of insurance less.

All of which emphasizes what we said in the first paper, that the burnt clay interests should devote their efforts, brains, time and money towards the production of materials — terra-cotta and bricks — of ultimate strength, lightness and adjustability for solid masonry construction, and not stand, as now, the sponsors of the steel frame.

Every architect who has an ounce of pride and imagination in his professional efforts naturally desires that the buildings which are the offsprings of his creative faculties shall be endowed with as large an element of beauty as possible. This element does not in all cases depend upon cost, but nevertheless money does enter to a considerable degree into its possibilities; for, in the great majority of cases, buildings, whatever their nature or cost may be, have a limit, no matter what the sum may be, either because of the demands of business investments and per cent of income; public appropriations; or the limit of a client's purse.

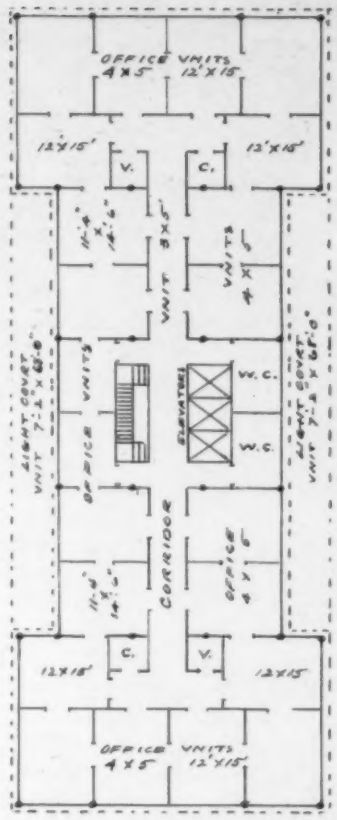
Some architects appear to have the happy fortune in clients with a superabundance of means, but it may be said with truth that the results are not invariably of the highest order either as to structural science, architectural expression or beauty. The amount of an architect's practice does not by any means gage either his æsthetic or practical ability; there are many examples which prove the contrary. The great majority of architects are certainly less fortunate in the money at their disposal. With these the efforts to obtain beauty and to themselves at least satisfactory results must depend on two quite antagonistic elements of professional make-up, — the practical and the æsthetic, not an altogether common combination in one personality. Either one or both may be a gift of nature at the start, more or less evenly balanced or unbalanced. They are largely a matter of training, experience, observation and knowledge of the market. To our mind no American architect ever had the two, *intuitively*, in a higher degree than Henry Hobson Richardson. We say intuitively, because his mind was evidently not a practical one by training or otherwise, while it was, unquestionably, a highly organized æsthetic and creative one; no modern architect had so slight a conception of the value of money as money, yet he designed and erected a remarkable number of buildings solid and beautiful, and in respect to their solidity and beauty the cost was surprisingly low.

It is evident, having a limit of cost against a building, that its element of beauty depends not only on the architect's intuitive and trained perceptions and ability to de-

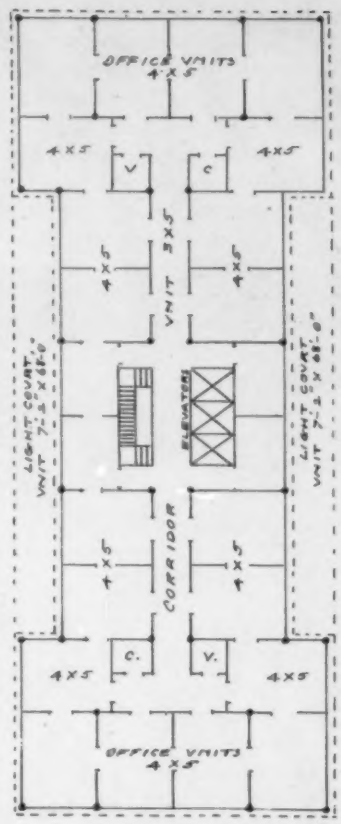
* Steel frame and terra-cotta construction.

sign, but upon his practical constructive ability to plan, *construct*, with the least expenditure of materials, labor and cost, consistent with sound structural principles, knowledge of materials and how to use them, of labor and how and where to apply it, of cost and how to compute it. This knowledge is not and can not be taught in the schools. It can only be acquired by personal study, effort, investigation and experiment, *i. e.*, testing materials himself: the accumulation of a store of data and facts, with the mental agility and confidence to quickly select and apply the right thing to the right purpose, the knowing how to *do*, and the best way of *doing* it. And so he knows in a given case how much his construction will cost and how much he can use to embellish his construction, and what is or should be a fair cost per cubic foot for the building complete. If he knows how to save 5 to 10 per cent in the cost of construction, without sacrificing stability, he knows he has 5 to 10 per cent more to spend for beauty, and whether or not he can spend 7 to 12 per cent of cost in stone or terra-cotta trimmings and carving, and 2½ to 5 per cent in marble or mosaic decorations, or use low or high cost woods for inside trimming.

There are building stones, easily obtainable for structural uses, which in respect to compression vary all the way from 10,000 to 40,000 pounds per square inch, and bricks which run all the way from 2,000 to 18,000 pounds per square inch, yet the evidence is rare in which the use of such materials is employed as an economic basis of means to ends; with a requisite factor of safety, one make of bricks is cheaper, laid in the building, at $35.00 per thousand than other make of bricks at $20.00 per thousand. A *Corinthian* cornice in a building will cost $25 to $40 per linear foot, according to the kind and quality of stone used; the same in terra-cotta or sheet copper will cost $15 to $17.50 per linear foot, and in galvanized iron considerably less. In case of fire the chances are that the stone cornice will go to pieces and some parts of it fall and kill some one; the terra-cotta will stay in place, with the probability that no great cost will be involved in its restoration; the galvanized iron (steel) will be a wreck any way.



STREET FRONT.
LOT 50 X 125 FEET.
FIG. 5. SYSTEM A.



STREET FRONT.
LOT 50 X 125 FEET.
FIG. 6. SYSTEM B.

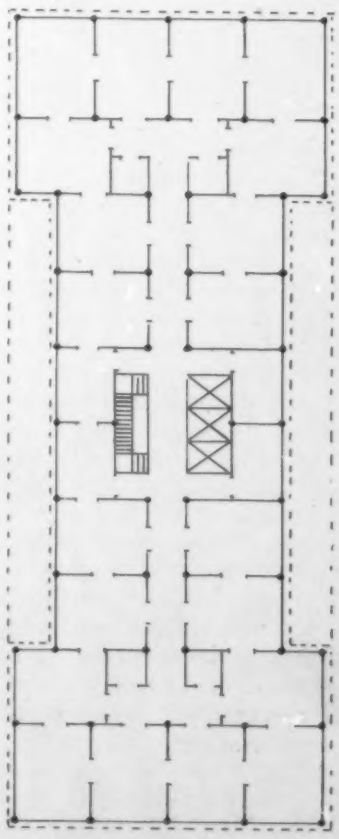


FIG. 7. SYSTEM C.

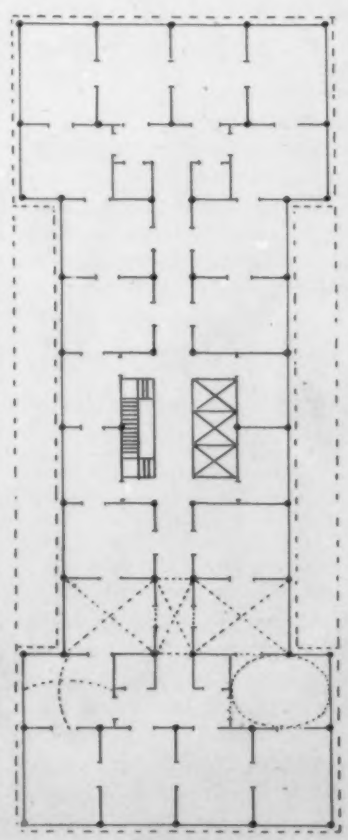


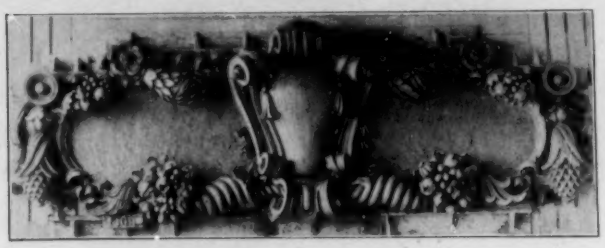
FIG. 8. SYSTEM D.

IT is now a year since the destruction of the campanile of St. Mark's, and apparently Venice is as far from seeing the beginning of the restoration as she was the day after the disaster. It was reported that Signor Boni was to undertake the restoration of this important monument. We are told now that this work was intrusted to Moretti and Beltrami, and that the former has resigned rather than let the work interfere with his work as a teacher of architecture, while the latter has withdrawn because he does not wish to do it alone. What they need in Venice is a little American get-up-and-go. They do those things better this side of the Atlantic. The principles involved in a construction of this sort are so extremely simple that here it would not be considered in any sense a large commission, and if the whole structure could not be built inside of four months it would surely not be for lack of ability or experience on our part.

Selected Miscellany.

NEW YORK NOTES.

In spite of the long tie-up of building operations, the large architectural offices seem to keep busy with new work, and we may safely say that the tide of prosperity shows no sign of turning yet.

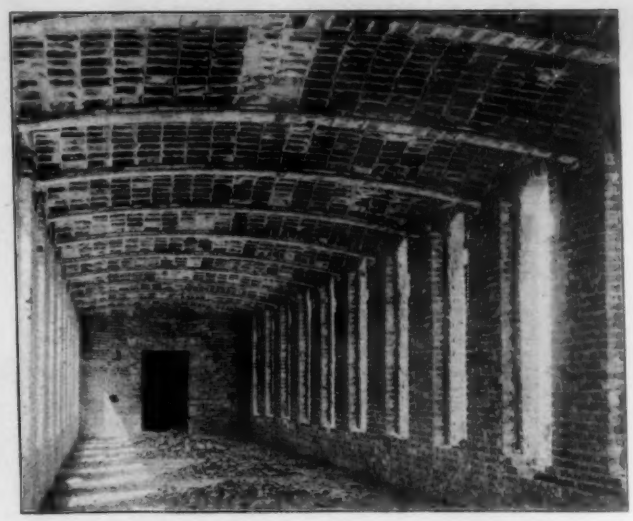


DETAIL BY ISRAELS & HARDER, ARCHITECTS.
New York Architectural Terra-Cotta Co., Makers.

A great many of our younger architects and draughtsmen are sharpening their pencils for a dig at THE BRICKBUILDER Library Competition. It is seldom that so tempting a bait is offered, aside from the interesting study involved in such a problem. Competitions of this sort, based absolutely on merit, cannot fail to produce splendid results.

CHRIST CHURCH, PENSACOLA, FLA.
John Sutcliffe, Architect.
Covered with American, Spanish Model, Roofing Tile made by Cincinnati Roofing Tile and Terra-Cotta Co.

Brooklyn is to have a new $1,000,000 municipal building. The program for the competition has been given out and thirteen architects have been invited to compete. They are now at work on the preliminary sketches. Each competitor is to receive $500 for his work, a provision of the city fathers which is much to be commended. Professor Despradelles, of the Massachusetts Institute of Technology, prepared the program, and is to be the professional adviser.



GUASTAVINO TILE CEILING FORMING FLOOR IN A DORMITORY OF THE NEW HOSPICIO FOR THE GOVERNMENT, CITY OF MEXICO.

Another interesting competition now under way is for the $150,000 high school at Plainfield, N. J. Fifteen architects have been invited to compete for this building, the best design being awarded the contract, the second $400 and the third $300. Mr. Walter Cook, of the well-known firm of Babb, Cook & Willard, is the professional adviser.

The fact that so many competitions at the present time are guided by professional advice of the highest standard is exceedingly encouraging, and will make work of this sort far more agreeable and satisfactory.

Henry F. Hornbostel has prepared some elaborate and beautiful drawings for the reconstruction of City Hall Park and the housing of all our municipal departments. He proposes removing every building in the present park except our dignified and beautiful old City Hall, and enlarging the park by the removal of our ugly and expensive post office. Of course these ideas are so tremendously extravagant that I am afraid they will never be adopted, although they are perfectly feasible and practicable, and in a matter of this sort expense should cut no figure.

These plans also call for two more buildings to be built on Chambers Street facing the park, and resembling the present Hall of Records. The central

PANEL FOR MANTEL.
Executed in Terra-Cotta by Conkling-Armstrong Terra-Cotta Co.
Peabody & Stearns, Architects.

PUBLIC SCHOOL, JERSEY CITY, N. J.
Built of Brick made by Kreischer Brick Mfg. Co.

building would be more ornate and would be connected with the park by a handsome stone bridge across Chambers Street. Not the least feature of the scheme is the granite tower, an office building forty-five stories high, for the housing of all the city departments. This part of the scheme seems to me faulty and visionary beyond reason.

CAPITAL BY J. T. W. JENNINGS, ARCHITECT.
American Terra-Cotta and Ceramic Co., Makers.

CATALOGUE OF THE NATIONAL FIREPROOFING COMPANY of Pittsburg, U. S. A. Abridged edition. Offices: Boston, New York, Philadelphia, Pittsburg, Chicago. Author and compiler, Henry L. Hinton, Engineer, National Fireproofing Company. New York: National Fireproofing Company. 1903. Price, $3.

This catalogue is most carefully prepared to afford the architect, the engineer and the builder, the insurance underwriter, and all others interested, reliable information concerning the fireproofing of buildings by means of the various materials and methods in common use to-day, but more particularly by the use of the material known as porous terra-cotta, the special product of most of the works of this company. All the details of terra-cotta construction in the various forms which are manufactured

DETAIL BY VICTOR HUGO KOEHLER, ARCHITECT.
New Jersey Terra-Cotta Co., Makers.

by the company are carefully considered and analyzed in every respect, with abundant tables giving strength and dimensions, together with the sizes of beams, etc. The whole is most carefully worked out, and the publishers have very wisely left every alternate page blank for memoranda such as are sure to occur in connection with the use of the book. This catalogue consists in essence of an abridgment from the advance sheets of a work planned by the National Fireproofing Company on a very comprehensive scale and intended to exhaustively treat the whole subject of fireproofing with burnt clay. The completed work will include a great deal of very scien-

BEACON BUILDING, BOSTON.
Goodwin & Siter, Architects.
Built of Kittanning Gray Brick, Fiske & Co., Boston Agents.

tific investigation into clays and shales, the finished terra-cotta, methods of loading, economical floor construction and steel framing, and will form a compendium of existing knowledge upon the subject. The handbook, terra-cotta for years will be surprised in studying this volume to find in how many different shapes terra-cotta fireproof construction is now put on the market and how carefully the various forms have been studied to meet all

DUDLEY MEMORIAL DORMITORY, BROOKLYN, N. Y.
William C. Hough, Architect. Terra-Cotta made by Excelsior Terra-Cotta Co.

however, offers in very compact shape practically all the information which the designer would need in laying out work and proportioning the various members, both of the steel frame and of the terra-cotta filling, the former naturally receiving, however, only a relatively brief consideration. We imagine that many architects who have used the emergencies of the necessities which have arisen in connection with our modern steel frame structures, so that really the designer need not be at a loss to know what particular form to use, but can design his steel frame in such manner as will give the most economical structural results and be pretty sure of finding in these

DETAIL BY BARNETT, HAYNES & BARNETT, ARCHITECTS.
Winkle Terra-Cotta Co., Makers.

DETAIL BY B. H. MARSHALL, ARCHITECT.
Atlantic Terra-Cotta Co., Makers.

pages full descriptions of the special shape of arch, skew back or filling block which would most completely answer for this special construction. The consolidation of the various fireproofing interests has made a work of this kind possible both by standardizing the forms and by making practical such economies in consructions as will allow the company to make and keep on hand a great variety of shapes.

HOUSE AT CAMDEN, N. J.
Harvey J. Shumway, Architect. Built of Brick made by Atlantic Brick Co.

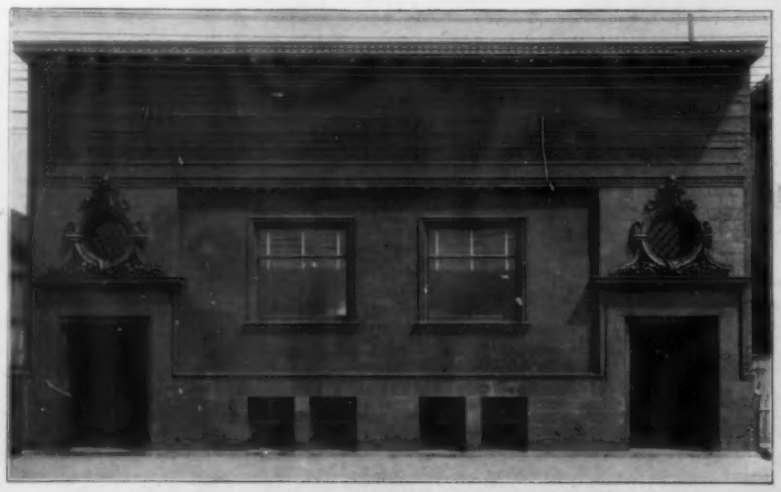
dormitories and barracks for the hospital corps, gymnasium and recreation hall, guard and store houses, power plant, etc., and the general drawings, block plan and bird's-eye view of the buildings will be submitted to Congress at the coming session, when it is expected that appropriations will be made to begin the construction work, the total cost of the work being estimated at $2,500,000.

BAS-RELIEF EXECUTED IN TERRA-COTTA.
Made by St. Louis Terra-Cotta Co.

BARN, CHICAGO.
Burtar & Gassman, Architects.
Covered with Tiles made by Ludowici Roofing Tile Co.

IN GENERAL.

Marsh & Peter, Washington, D. C., have been commissioned by the War Department as the architects for the proposed new Army Post and General Hospital to be located on a site yet to be selected near Washington. The group will consist of administration and hospital buildings, chapel, memorial hall, nurses' home, residences for the officers and medical staff,



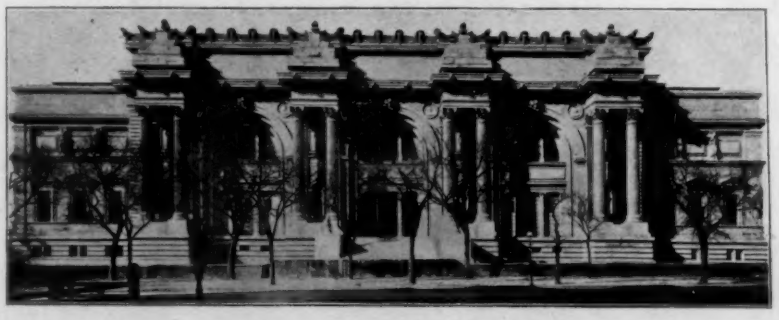
PUBLIC BATH HOUSE, CHICAGO.
R. Bruce Watson, Architect. Terra-Cotta made by Northwestern Terra-Cotta Co.

It has been the constant aim of the management of the American School of Correspondence to raise the standard of correspondence instruction in general to the plane of serious educational work. All the officers and instructors of the school are college men, graduates from such institutions as the Massachusetts Institute of Technology, Harvard, Tufts College, Lehigh University, Dartmouth and

Armour Institute of Technology. They are men fitted by experience and education to offer sound instruction, and they are men whose sense of responsibility to their alma mater will not permit them to hold any but the highest educational ideals and standards.

BALUSTRADE, HERTS & TALLANT, ARCHITECTS.
Perth Amboy Terra-Cotta Co., Makers.

Modern business methods would surprise our grandfathers. The offices of modern up-to-date manufacturers are equipped after a fashion that would make the pioneers of American trade rub their eyes. I had occasion the other day to visit the great plant of the New York Architectural Terra-Cotta Company at Ravenswood with a friend, an architect, who wished to inspect some elaborate and artistic models for one of the new buildings. After we had passed a few hours in the great modeling room, where the workmen were working clay into designs for the various ornamental parts of a building, reminding



METROPOLITAN MUSEUM OF ART, NEW YORK CITY.
Hunt & Hunt, Architects.
The large quantity of enameled brick used in interior was made by American Enameled Brick and Tile Co.

me of the studios of sculptors, we visited the office. Here we met Mr. Walter Geer, the president, and Mr. Bushnell Danford, the secretary. They invited us to lunch. Now it is here where the old method is superseded by the new. An entire floor is devoted to entertainment. It has reception rooms, retiring rooms, a large dining room and kitchens. The walls are adorned with photographs of great buildings like the University Club, the Waldorf-Astoria, the Hotel Imperial, Ansonia, Delmonico's, German Square, Dorling's and other conspicuous edifices for

GARDEN FROM PORCH, HOUSE, WARREN, R. I.
Charles A. Platt, Architect.

which the company has furnished terra-cotta; the great brick fireplaces are noble specimens of the work done in this favored building material, etc. In the reception rooms are great albums showing the noblest specimens of Greek and Roman architecture, also of the Italian and French Renaissance. — *The Pittsburg Press.*

A fairly good idea of the immense growth of the enameled brick business in this country may be gathered from the pamphlet just issued by the American Enameled Brick and Tile Company of New York, in which is given a list of the more important buildings in this country in which their brick have been used. The names of the architects and number of bricks used are also given.

A pocket catalogue and price list, furnishing information regarding their product in the simplest and most concise form, has been issued by the Illinois Hydraulic Press Brick Company of St. Louis. It contains a great deal of desirable information relating to everyday practice.

THE SOCIETY OF BEAUX-ARTS ARCHITECTS

HAS ESTABLISHED A FREE COURSE OF STUDY, OPEN TO DRAUGHTSMEN AND STUDENTS OF ANY CITY, MODELLED ON THE GENERAL PLAN PURSUED AT THE ECOLE DE BEAUX-ARTS IN PARIS, AND COMPRISING FREQUENT PROBLEMS IN ORDERS, DESIGNS, ARCHÆOLOGY, ETC.

FOR INFORMATION APPLY TO THE SECRETARY OF THE COMMITTEE ON EDUCATION, 3 EAST 33D STREET, NEW YORK CITY.

Competition for a Public Library

First Prize, $500 Second Prize, $200 Third Prize, $100

PROGRAM

IT is assumed that a public library is to be presented to a town located in the middle west. This town occupies a picturesque position in a rolling country bordering one of the Great Lakes and is the seat of a small but important college. The public square is a park which is assumed to be 300 feet wide and upwards of 1,000 feet long. At one end is already built the town hall, and at the opposite end will be placed the library. The ground rises gently towards the proposed site, so that the position will be a commanding one. The whole frontage of 300 feet will be given to the library and its approaches, and the entire depth of the lot is 200 feet. The total rise from the curb line to the center of the lot is 10 feet, and the grade falls off towards the rear 1 foot in 40. Sidewise the grade falls off equally each way from the center 10 feet to the boundary lines. The building must set back a distance of 75 feet from the front line, and the approach must be treated in an architectural manner.

The exterior of the building is to be designed entirely in terra-cotta, and colored terra-cotta or faience may be introduced as a feature of the design.

The following accommodation is to be provided for in plan. The dimensions given are only approximate and may be modified as required by the exigencies of the design:

First Story. Vestibule, 200 sq. ft.; periodical room, 1,000 sq. ft.; reference library and reading room, 1,000 sq. ft.; general delivery room, 600 sq. ft.; trustees' room, 350 sq. ft.; librarian's room, 350 sq. ft.; stack room, 1,500 sq. ft.

Second Story. Children's room, 500 sq. ft.; music room, 500 sq. ft.; exhibition room, 500 sq. ft.; two rooms for special collections, 500 sq. ft. each.

It is assumed that the lavatories, storerooms, etc., are all to be located in the basement, which is to be raised sufficiently above the finished grade to allow of fair lighting. There are to be two flights of stairs leading to the second story, but they are not to be made a prominent feature. It will be assumed that the heating plant is entirely distinct from the building, there being consequently no provision made for a chimney, but space should be provided for ample ventilation flues.

Drawings Required. An elevation at a scale of 1-16 inch to the foot, which is to show the entire frontage of the lot, 300 feet, and to indicate the treatment of approaches. There are also to be sketch plans of the first and second floors at a scale of 1-32 inch to the foot, and details drawn at a scale of 3-4 inch to the foot showing the character of the design and the construction of the terra-cotta. The elevation is to appear upon one sheet, and the details and plans upon another. The width and length of each sheet shall be in proportion of three to four and not exceed 24 x 32 inches. All drawings are to be made in black ink without wash or color.

It must be borne in mind that one of the chief objects of this competition is to encourage the study of the use of architectural terra-cotta. No limitation of cost need be considered, but the designs must be made such as would be suitable for the location, for the character of the building and for the material in which it is to be executed. The details should indicate in a general manner the jointing of the terra-cotta and the sizes of the blocks.

In awarding the prizes the intelligence shown in the constructive use of terra-cotta will be a point taken largely into consideration.

Every set of drawings is to be signed by a nom de plume or device, and accompanying same is to be a sealed envelope with the nom de plume on the exterior and containing the true name and address of the contestant.

The drawings are to be delivered flat at the office of THE BRICKBUILDER, 85 Water Street, Boston, Mass., on or before October 31, 1903.

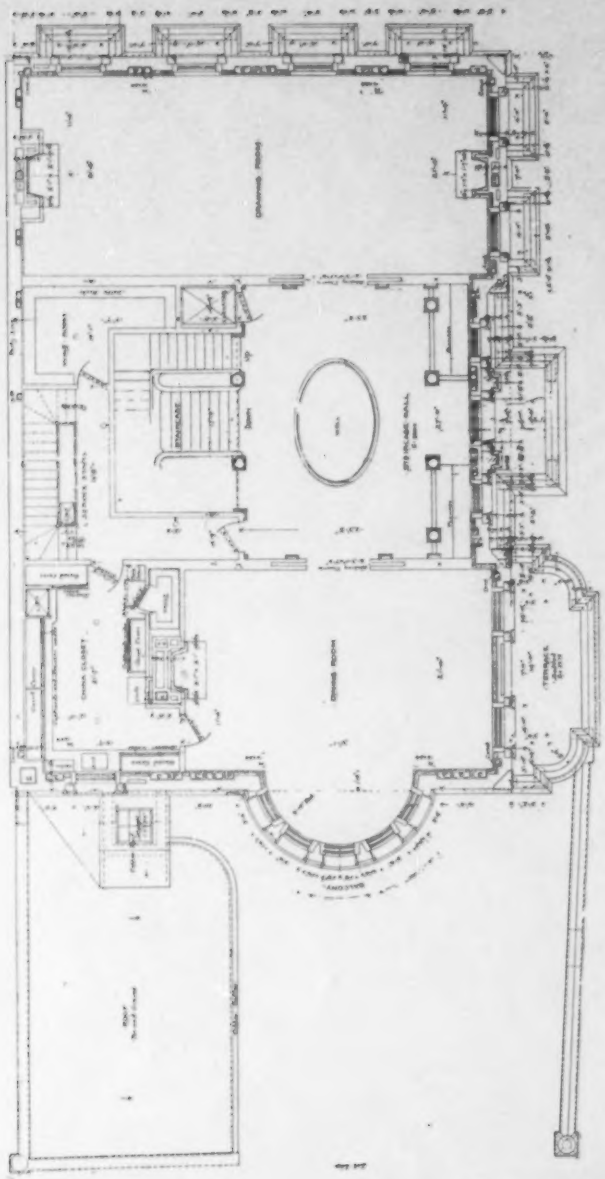
The designs will be judged by three well-known members of the architectural profession.

For the design placed first in this competition there will be given a prize of $500.
For the design placed second a prize of $200
For the design placed third a prize of $100.

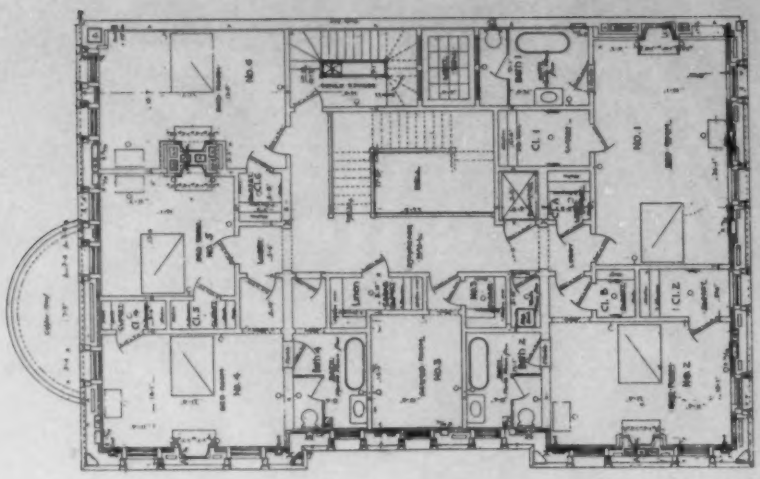
All drawings submitted in this competition are to become the property of THE BRICKBUILDER, and the right is reserved to publish any or all of them.

We are enabled to offer prizes of the above-mentioned amounts largely through the liberality of the terra-cotta manufacturers who are represented in the advertising columns of THE BRICKBUILDER.

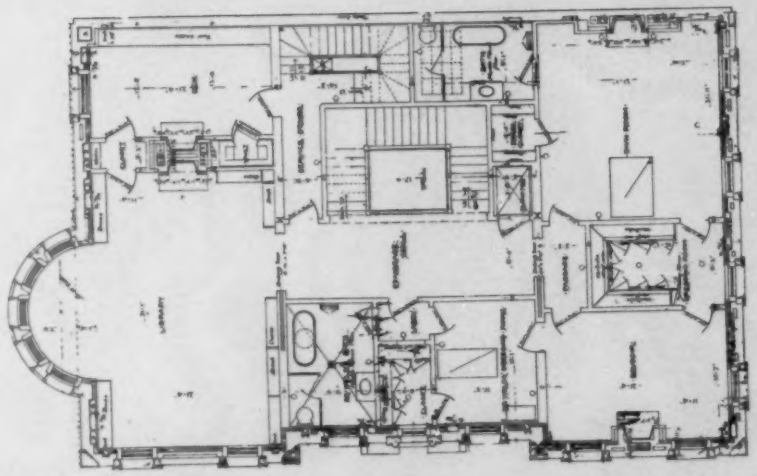
This competition is open to every one.



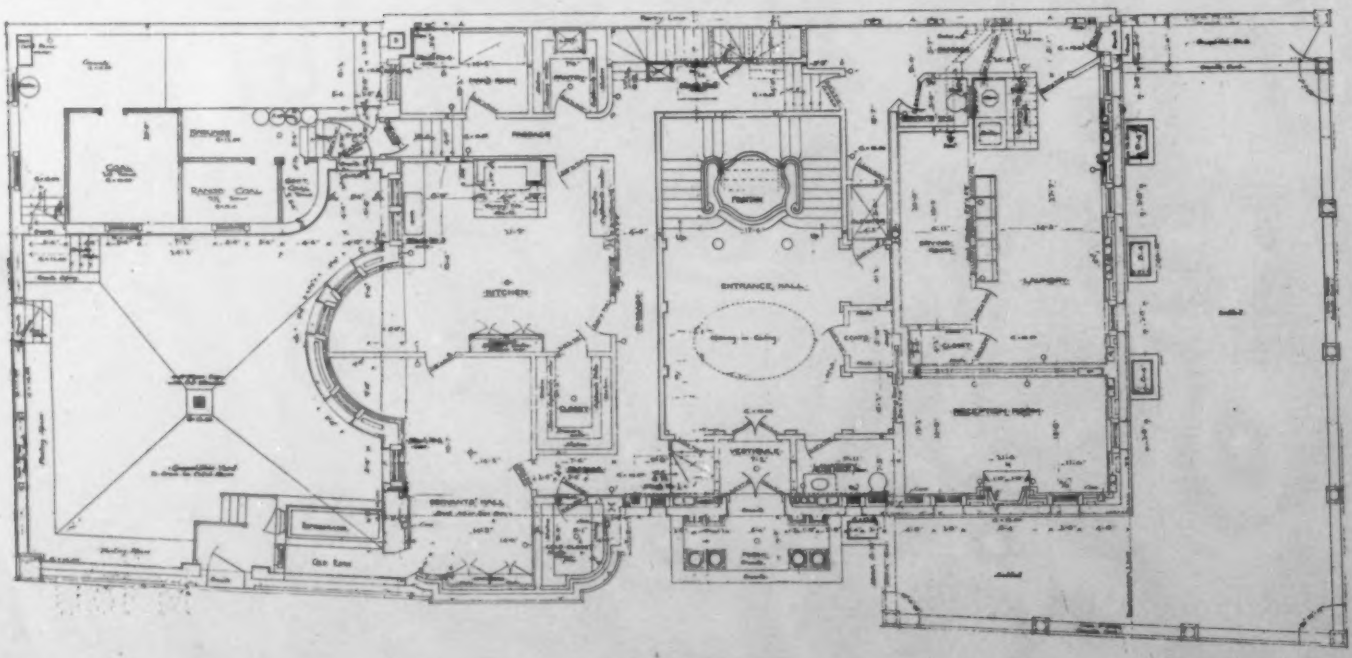
FIRST FLOOR PLAN.



THIRD FLOOR PLAN.



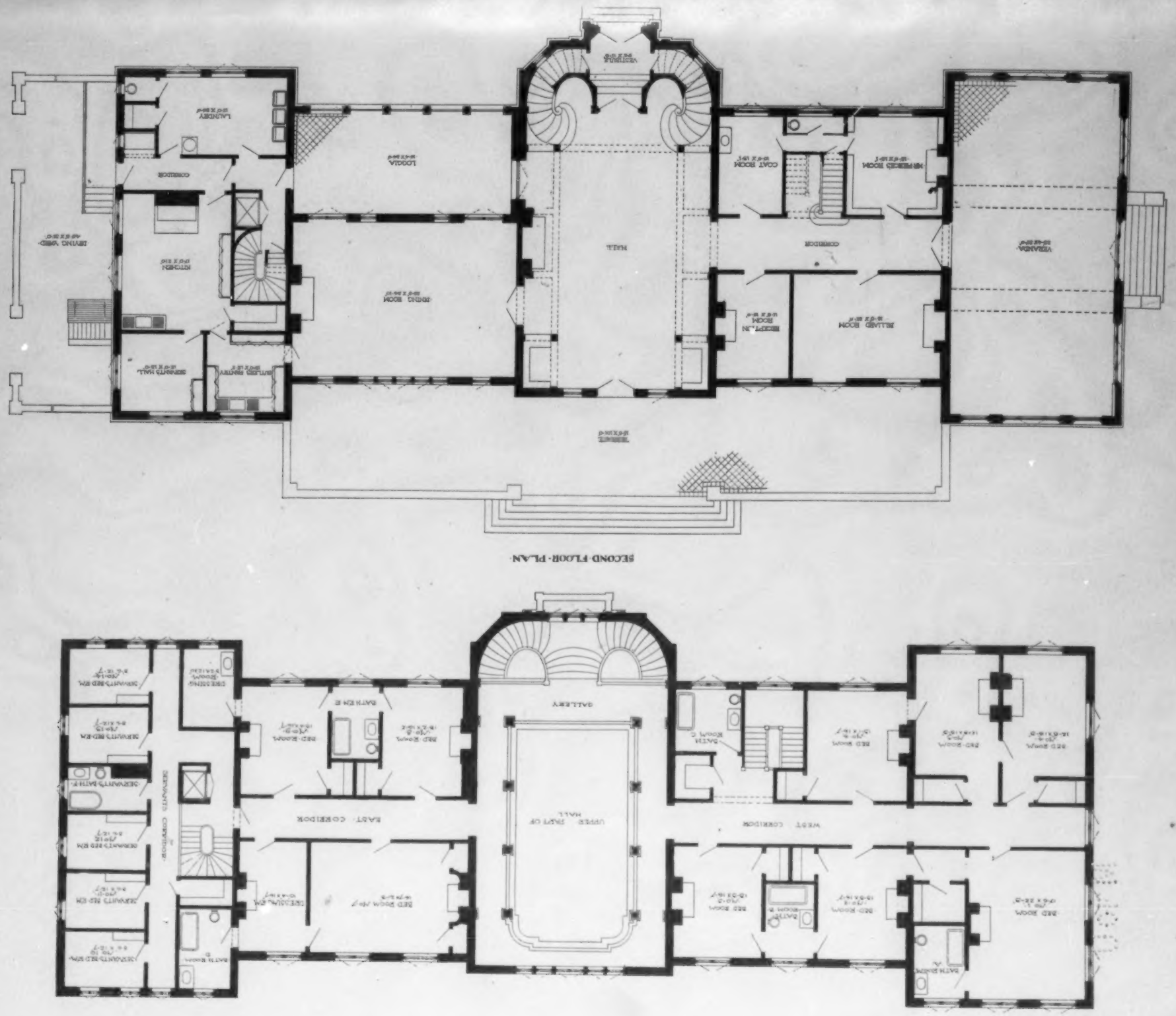
SECOND FLOOR PLAN.

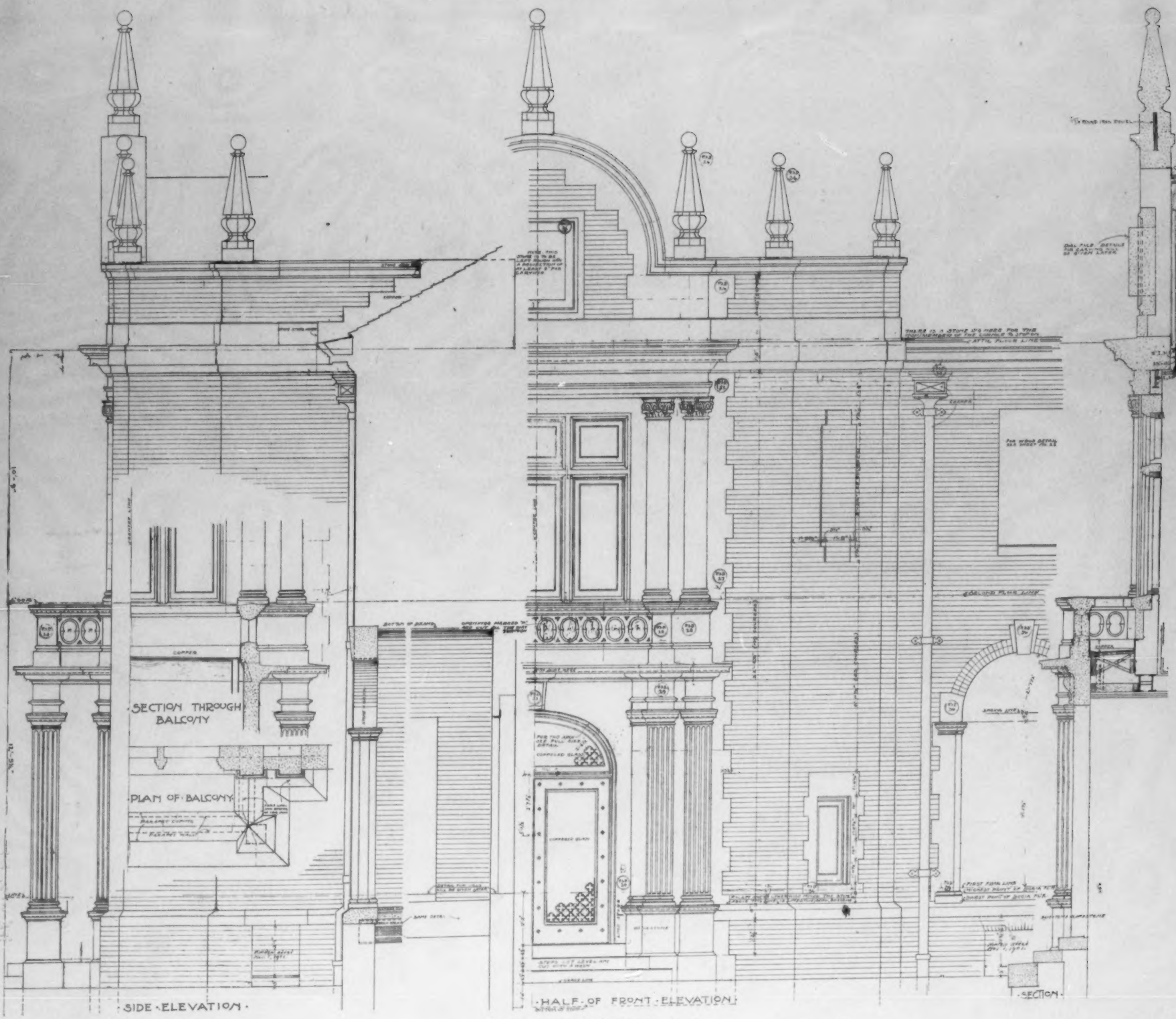


BASEMENT PLAN.

PLANS, HOUSE, BAY STATE ROAD, BOSTON, MASS.

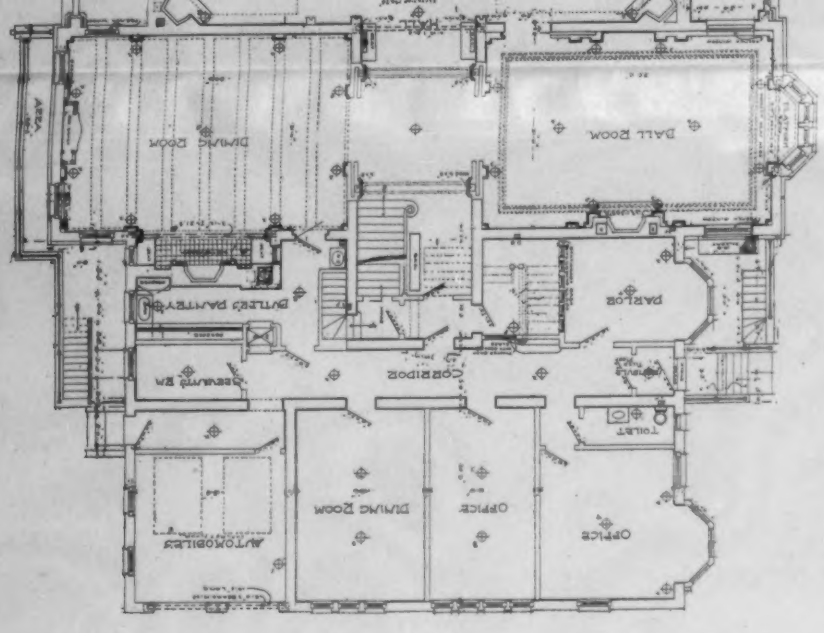
PETERS & RICE, ARCHITECTS.

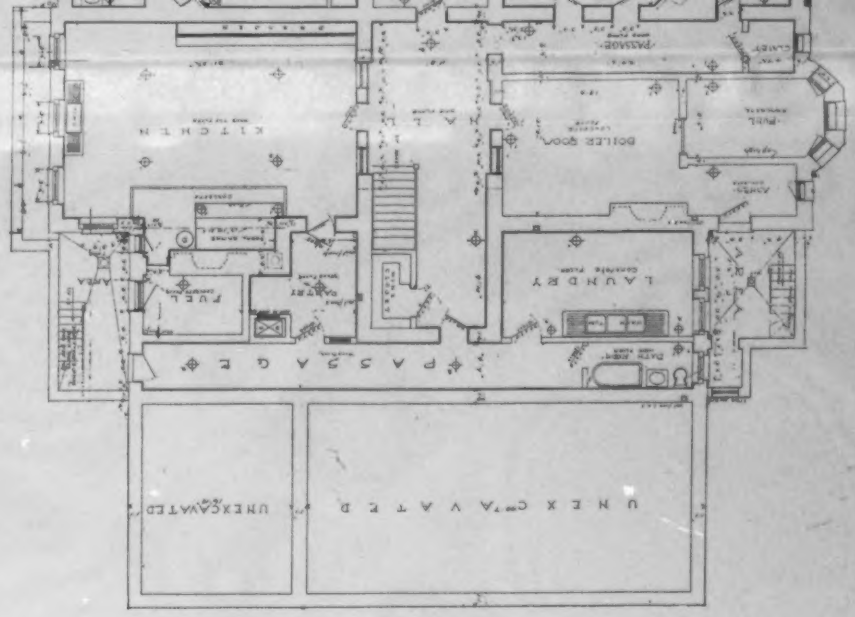

FIRST FLOOR PLAN
SECOND FLOOR PLAN

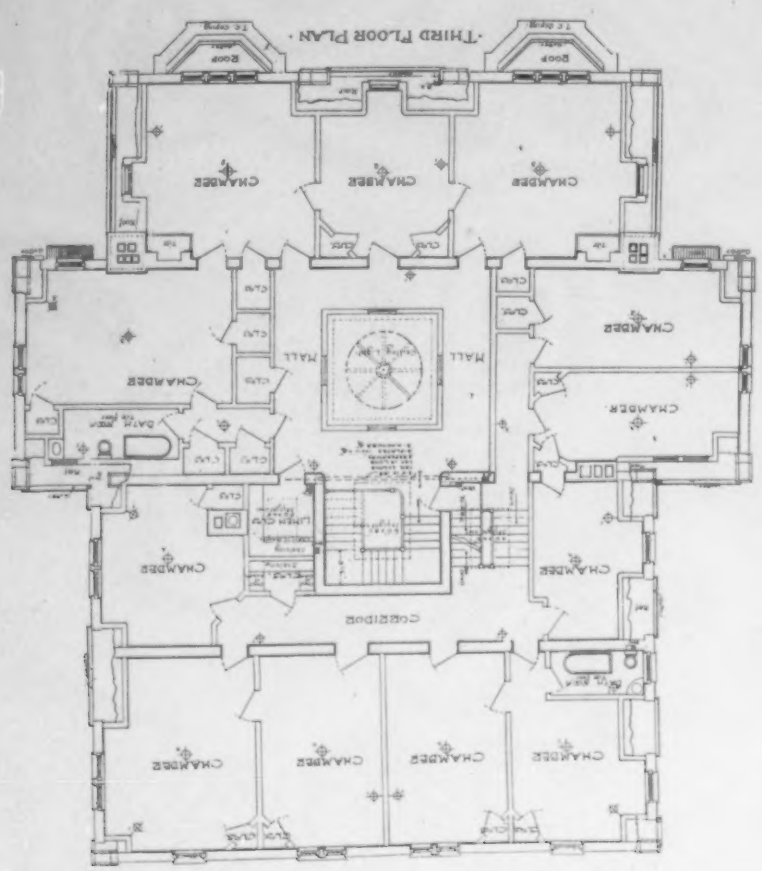


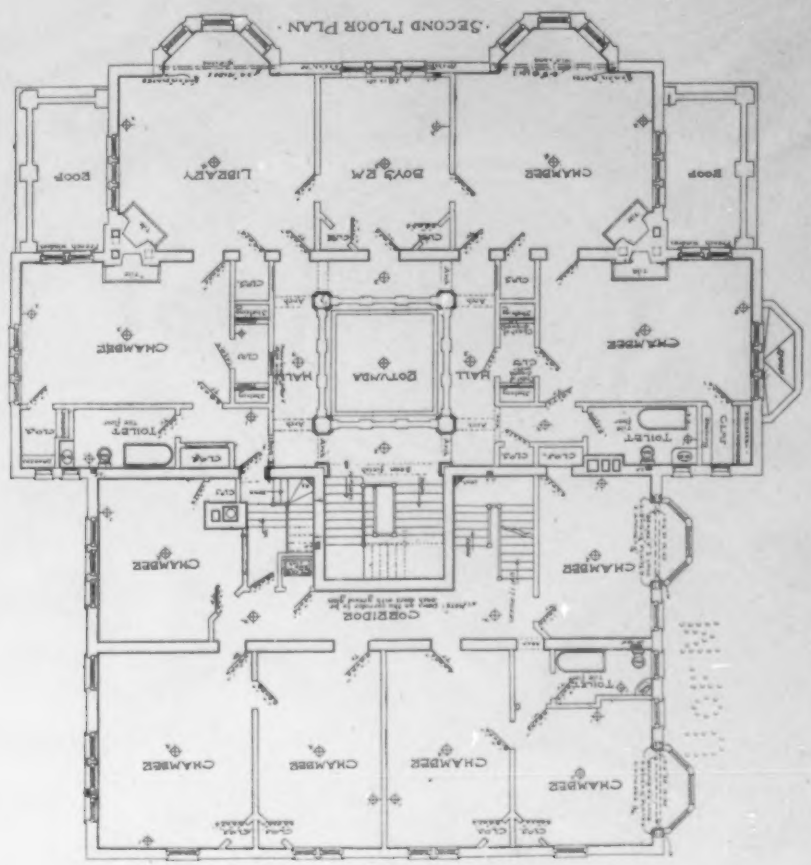
HOUSE AT BAYVILLE, L. I.

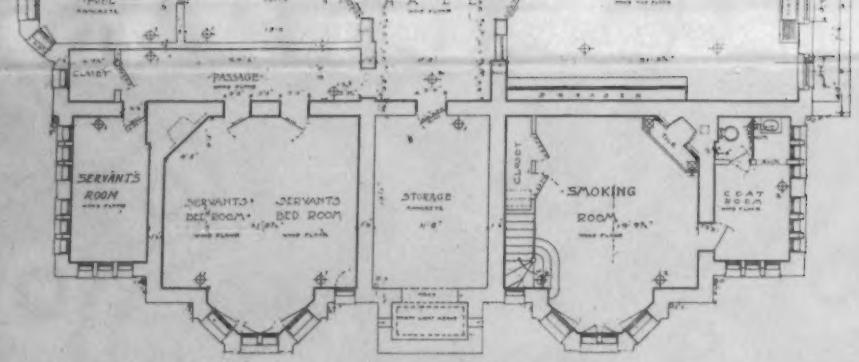
BABB, COOK & WILLARD, ARCHITECTS.


DINING ROOM
BALL ROOM
PARLOR
BUTLER'S PANTRY
CORRIDOR
OFFICE
OFFICE
DINING ROOM
AUTOMOBILES
TOILET

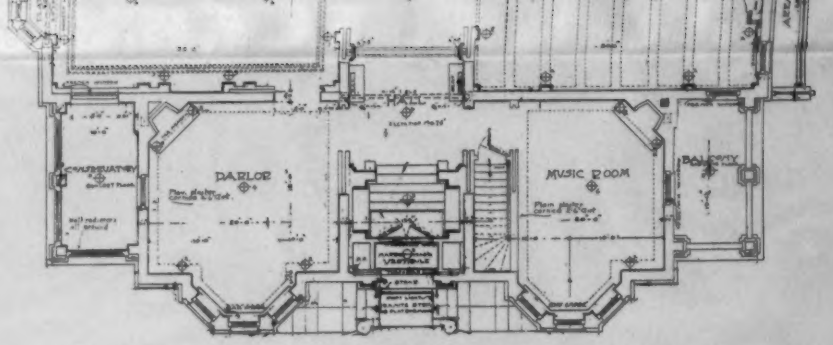

KITCHEN
BOILER ROOM
LAUNDRY
UNEXCAVATED
UNEXCAVATED


THIRD FLOOR PLAN
CHAMBER
CHAMBER
CHAMBER
CHAMBER
CHAMBER
CHAMBER
CHAMBER
CHAMBER
CHAMBER
CHAMBER
CHAMBER
CHAMBER
CORRIDOR
HALL
HALL


SECOND FLOOR PLAN
LIBRARY
BOY'S R.M.
CHAMBER
CHAMBER
BOTTVADA
CHAMBER
CHAMBER
CHAMBER
CHAMBER
CHAMBER
CHAMBER
CORRIDOR
HALL
HALL
TOILET
TOILET



BASEMENT PLAN.

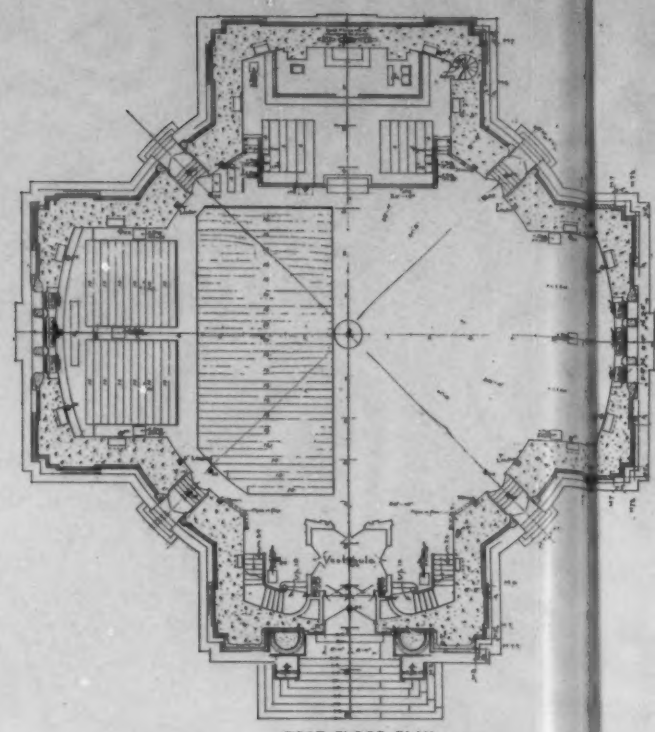


FIRST FLOOR PLAN.

ELEVATION OF FRONT.

CHINESE LEGATION, WASHINGTON, D. C.

WOOD, DONN & DEMING, ARCHITECTS.



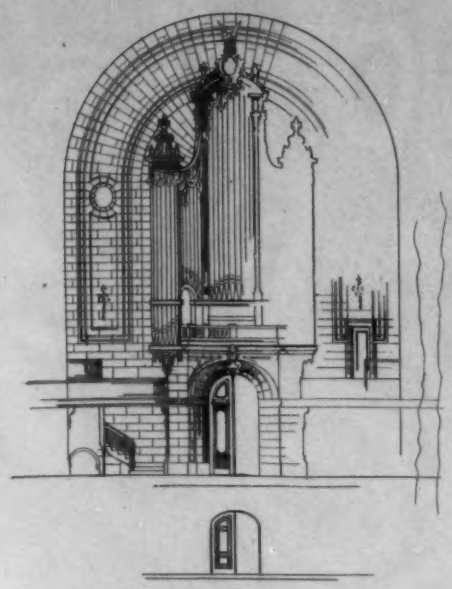
FIRST FLOOR PLAN.

FRONT ELEVATION.

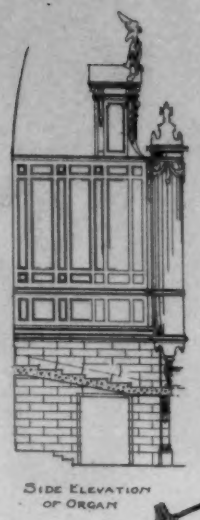
CHAPEL, UNITED STATES NAVAL ACADEMY, ANNAPOLIS, MD.

ERNEST FLAGG, ARCHITECT.

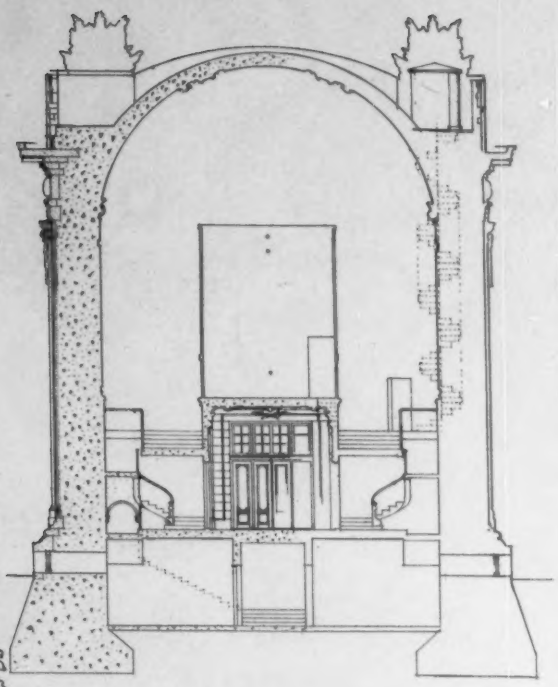
PLATES 52 and 53.



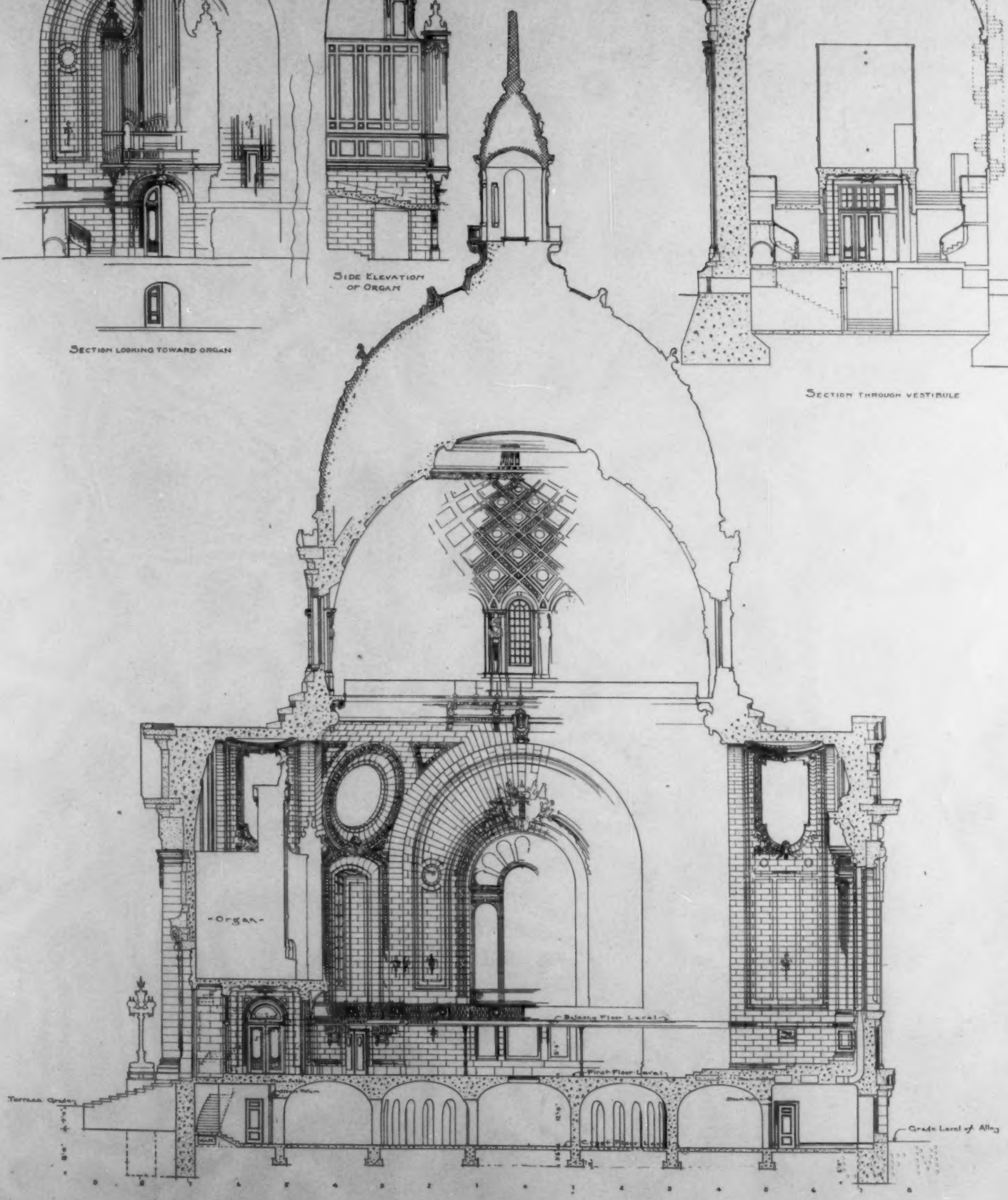
SECTION LOOKING TOWARD ORGAN



SIDE ELEVATION OF ORGAN



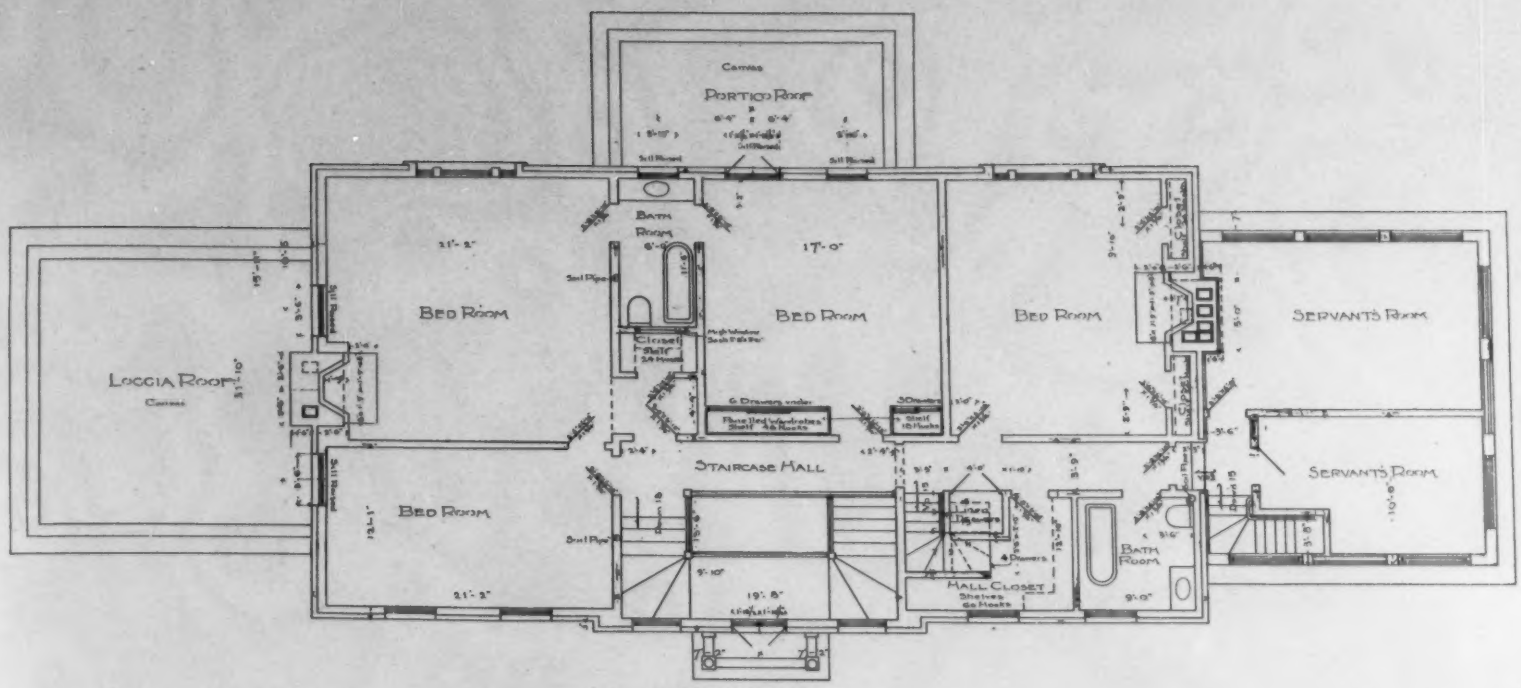
SECTION THROUGH VESTIBULE



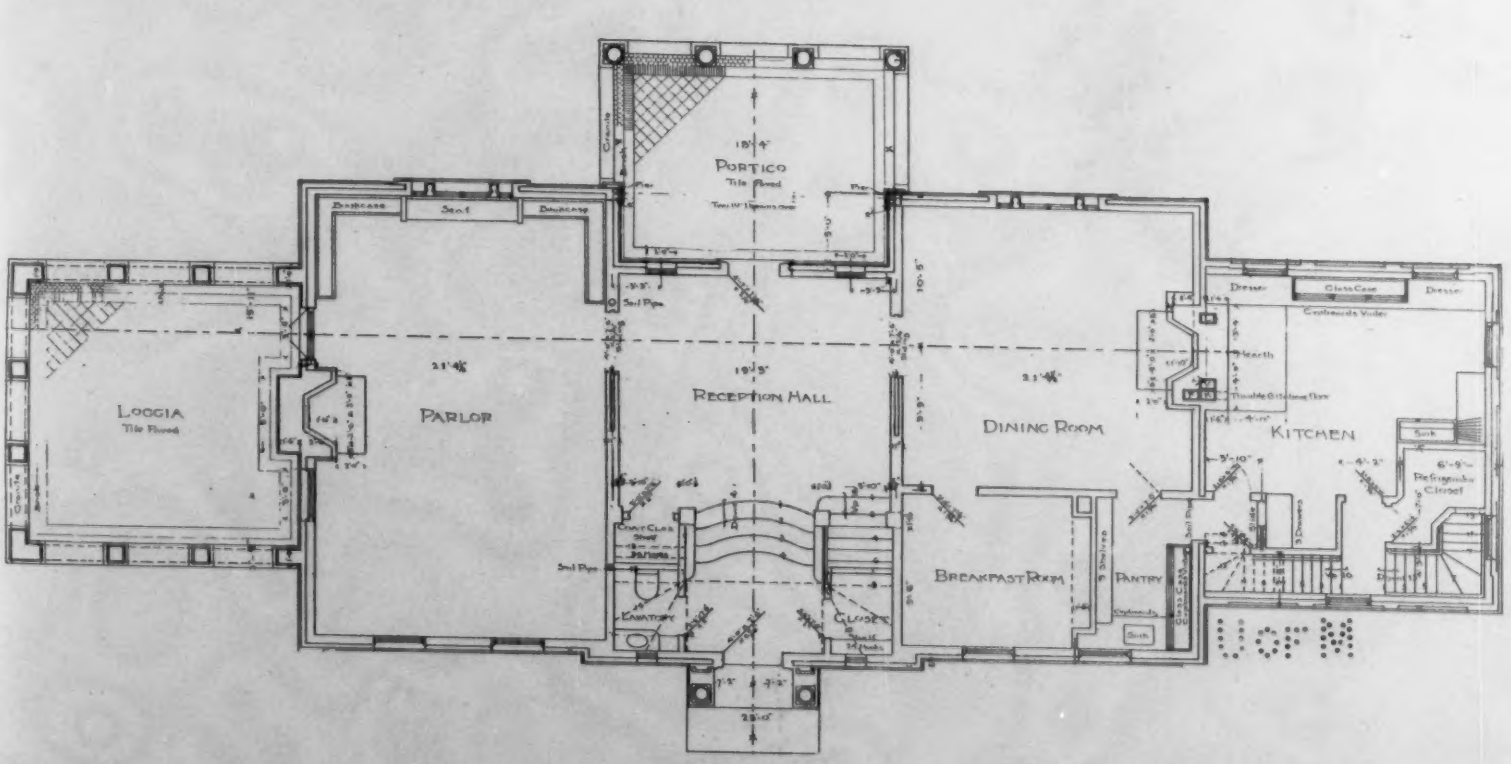
LONGITUDINAL SECTION.

CHAPEL, UNITED STATES NAVAL ACADEMY, ANNAPOLIS, MD.

ERNEST FLAGG, ARCHITECT.



SECOND FLOOR PLAN



FIRST FLOOR PLAN.

PLANS, HOUSE AT WARREN, R. I.

CHARLES A. PLATT, ARCHITECT.

HALLWAY, SECOND FLOOR.

DINING ROOM.

DRAWING ROOM.

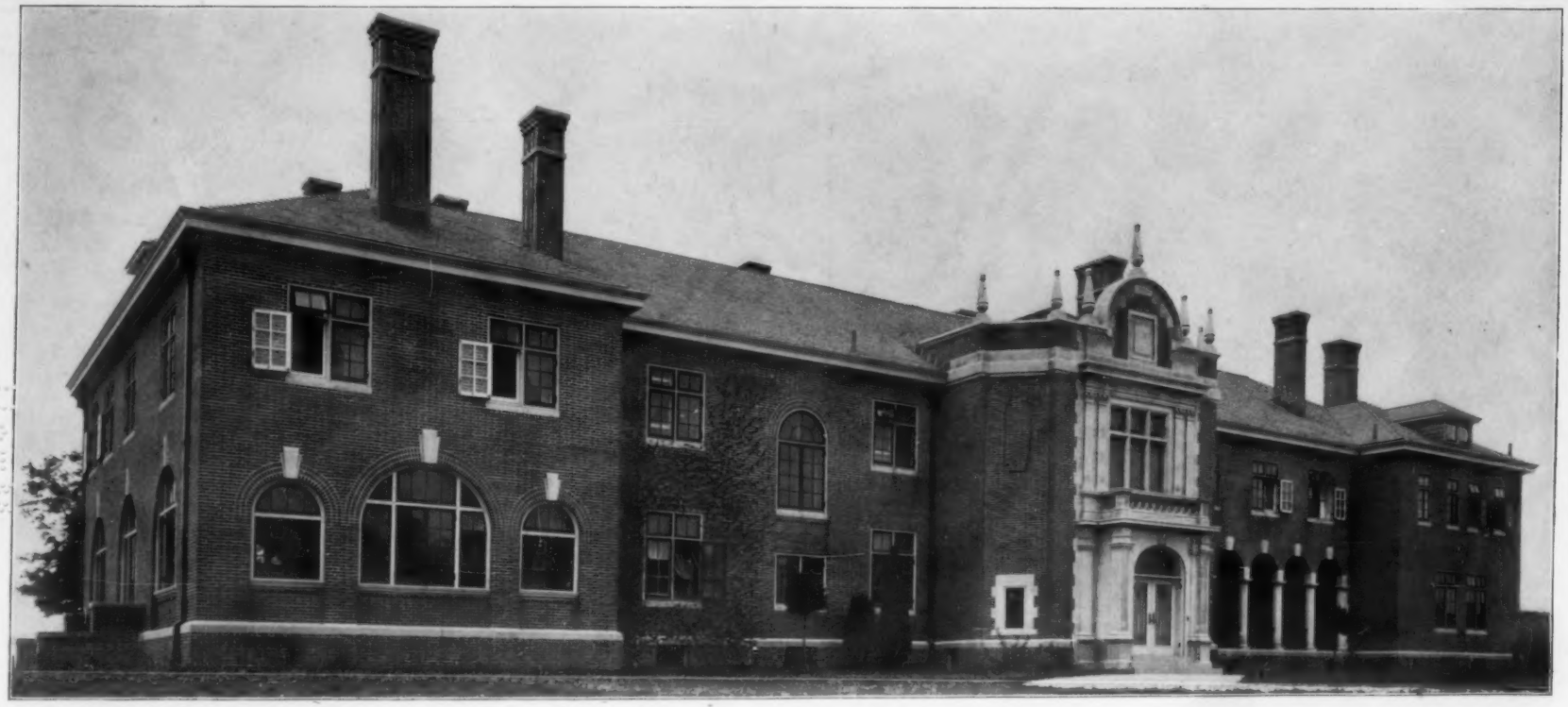
LIBRARY.

INTERIORS, HOUSE, BAY STATE ROAD, BOSTON, MASS.

PETERS & RICE, ARCHITECTS.

M 140

WATER FRONT.



ENTRANCE FRONT.

HOUSE AT BAYVILLE, L. I.

BABB, COOK & WILLARD, ARCHITECTS.

NEW CHINESE LEGATION, WASHINGTON, D. C.

WOOD DONN & DEMING, ARCHITECTS.

ПОКЛ

HOUSE AT WARREN, R. I.

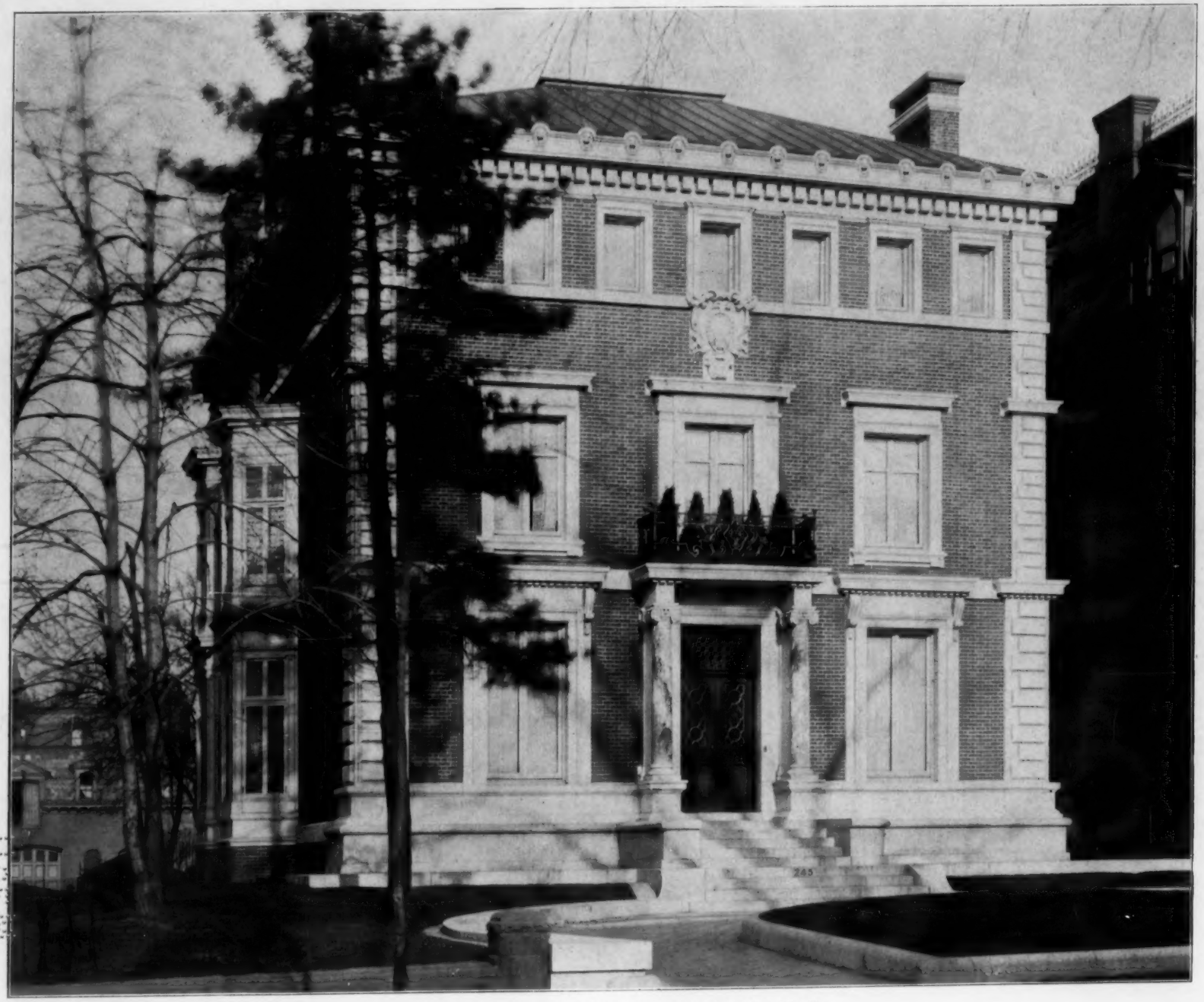
CHARLES A. PLATT, ARCHITECT

ПОЬИ

HOUSE, BAY STATE ROAD, BOSTON, MASS.

PETERS & RICE, ARCHITECTS.

M.L.O.U.



HOUSE, CLINTON AVENUE, BROOKLYN, N. Y.

BABB COOK & WILLARD ARCHITECTS.